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HEMANGIOMAS OF THE SKIN

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Our object in this paper is to record our observations and results of present day methods of therapy in the treatment of ninety-four consecutive cases of superficial hemangiomas representing 127 lesions. All of the material used for this paper is from the Oncology Clinic of the University of Maryland School of Medicine and Hospital. This work covers an eight year period, i. e. from the opening of the Oncology Clinic in the fall of the year 1930 to the end of the year 1938.

In a study of several hundred papers in recent current medical literature dealing with hemangiomas, we found that few authors gave details of therapeutic techniques and actual statistics of results. Here we report carefully prepared statistics and show that even though radium irradiation usually gives the best results of any form of therapy, there have been times when the cosmetic results were not entirely satisfactory. This percentage of unsatisfactory cosmetic results is small and may be present with any form of treatment. It is to be recalled that surgical excision is not without scarring, the amount of surgical scar varying, of course, with the skill of the operator and the amount of tumor removed. When large hemangiomas are excised, some tension is put on the skin edges with a resultant wide scar. Large hemangiomas may also require two stage operations for complete excision. In considering cosmetic results one must give an honest evaluation of all forms of therapy as related to the resulting scar in comparison with the original size of the lesion and the disfigurement.

INCIDENCE AND LOCATION

The most frequent location for superficial hemangioma is the nape of the neck. This is the commonly seen naevus simplex or telangiectasia nuchae of newborn babies. According to Blaisdell¹ a careful routine physical examination will show this type present in about 33 per cent of all newborn babies of the white race. We have not noticed this condition so frequently, but there is no doubt that it is common. These lesions usually are small and patchy in distribution, disappear easily on pressure, are never elevated, are pale red, and therefore do not impress the average observer as hemangiomas. A routine physical examination of adults often shows these reddened areas about the hairline of the neck even though the person was never aware of the

mark. As a result no treatment is necessary, and such hemangiomas will not be considered further in this paper.

The second most common location for superficial hemangiomas is the head. In this series of 127 hemangiomas the lesions were found on various parts of the head in the following order of frequency: face 28.2 per cent, scalp 11 per cent, lip 11.8 per cent, neck 3.9 per cent (exclusive of telangiectasia nuchae) and eyelid 2.3 per cent; therefore a total of 57.2 per cent of all hemangiomas were about the head. The face was also the most frequently selected site for port wine stains (naevus flammeus), which occurred in 5.3 per cent of this series. This is unfortunate, for such hemangiomas give the poorest results with any form of therapy.

Hemangiomas appeared on the body and extremities as follows: chest 7.1 per cent, extremities 15.7 per cent, abdomen 3.9 per cent, back 12.6 per cent, vulva 1.5 per cent, scrotum 8 per cent, buccal mucosa 8 per cent.

We record here the twentieth case of hemangioma of the scrotum. It was a typical hemangioma, 0.5 cm. in diameter and elevated 0.2 mm., it disappeared easily on pressure, and it was not associated with the underlying contents of the scrotum. The nineteenth was reported by Gibson,² who brought the literature to date. Our patient was treated successfully by solid carbon dioxide.

In 55 per cent of the cases the hemangioma was single, but in 45 per cent there were two or more, a rather high percentage of multiple lesions. The association of superficial hemangioma with hemangioma in some internal organ has been reported many times, especially in pediatric and neurologic literature, the most common association being hemangioma of the face with hemangioma of the brain. Our series does not agree with the literature in this regard.

CLINICAL CHARACTERISTICS

Three fourths of the superficial hemangiomas were present at birth, but an appreciable number did not appear until one or two months later. Hemangiomas seldom develop in infants after the first year, and thereafter the frequency decreases with age. It is unusual to see a hemangioma begin in an adult. The port wine stains were all present at birth.

Port wine stains usually remain of the same size and intensity of color noticed at birth except that they grow as the child grows, but there are a certain number of the cavernous and capillary hemangiomas which will increase in size and become more pronounced in color. Three cases of hemangioma of the extremities in this series enlarged after birth. The importance of this increase in size after birth is to be emphasized, as early

¹From the Oncology Clinic, Department of Surgery, University of Maryland School of Medicine and Hospital.

²Blaisdell, J. H.: "Vascular Nevi and Their Treatment," New England J. Med. 215: 485-488 (Sept. 10) 1936.

²Gibson, T. E.: "Hemangioma of the Scrotum," Urol. & Cutan. Rev. 41: 843-845 (Dec.) 1937.

treatment may prevent this growth. Only one case in this series extended laterally after radium treatment (fig. 6 A).

In the present series 90 per cent of the hemangiomas were in the white race and 10 per cent in the Negro race; 35 per cent were in males and 65 per cent in females. We believe that more blonds have hemangiomas than brunets, although we have found no statistics in the literature to substantiate this observation.

TREATMENT

Optimal Age.—Treatment should be instituted as early as possible. It is better to begin before the child is 3 months old, but certainly before the end of the first year. Early treatment is recommended mainly for three reasons: 1. The endothelial cells lining the vascular spaces of the tumor are more radiosensitive during their embryonic and early life. The radiosensitivity of these cells decreases in direct proportion to age; therefore the good results from irradiation decrease in the same proportion. Our observations correspond with those of Figi,³ who had poor results with irradiation of hemangiomas about the face in young adults. He advocates either electrocoagulation or surgical excision with skin grafting when necessary for these failures of radiation therapy. 2. Early treatment will prevent most lesions from getting larger and spreading laterally. 3. Residual effects of irradiation, such as scarring and increased pigmentation, decrease as the years go on, making for better cosmetic results. The earlier the treatment, then, the earlier and better the result.

Radium Technic.—In our clinic new cases are seen by a surgeon and a radiologist to get an unbiased opinion of the proper therapy. More lesions were treated by external irradiation than any other method. Radium alone was used in 74 per cent of cases and roentgen therapy alone, or more often combined with radium, in 10 per cent. Our technic for radium therapy is as follows: The amount of radium is usually 100 mg. of radium element, the filter is 1 mm. of platinum, screened with aluminum foil and rubber or felt, the distance

plaque is made to suit the size and shape of the tumor, permitting the radiation to be equally distributed throughout the growth.⁴ The same treatment is repeated every three or four months until the growth disappears. Large hemangiomas have to be marked off into several areas corresponding to the size of the radium plaque used, and each area is treated separately, overlapping being guarded against.

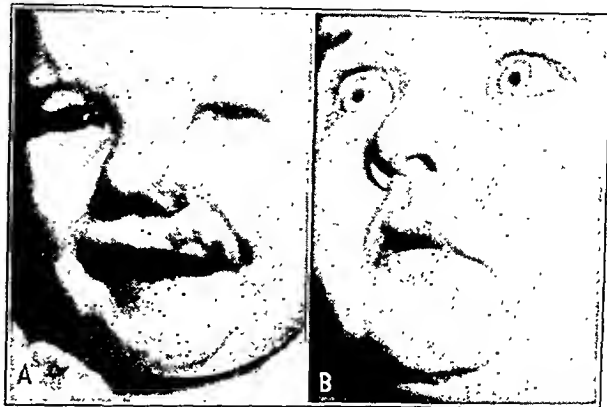


Fig. 2.—A typical hemangioma of the face, A before and B after radium treatment. No other form of therapy would give such a pretty cosmetic result.

The greatest effect from the irradiation will be seen within the first two months, followed by a slow but progressive fading for from four to six months. This slowness of effect is important to remember and, if kept in mind, will often prevent overirradiation. We prefer the minimum number of treatments which will give the optimum result, for the less irradiation used the less likely is sclerosis, atrophy, increased pigmentation or other abnormality to be left as a residual effect of overirradiation. One treatment was sufficient for 31.5 per cent of the 127 hemangiomas, but two and even three treatments were necessary for the remainder. Infants required fewer treatments than older children. With our technic of the radium element plaque, it is unwise to use more than two or three treatments to any one area because of the danger of late residual effects. When three such treatments fail to obliterate the growth with a good cosmetic result, some other procedure, usually excision, is used. Newcomet,⁵ of Philadelphia, and many others emphasized that small doses of radium, especially in the beginning of treatment, repeated several times over a long period, give the best cosmetic results of any type of hemangioma therapy. In the future we intend to use smaller doses than those outlined, as experience has taught us that the reaction is often too pronounced. Slightly smaller doses, i. e. from 175 to 200 milligram hours, repeated three or four times, will probably cause less reaction with just as much disappearance of the lesion.

Irradiation, either by radium or roentgen rays, acts by producing obliterative endarteritis and a mild diffuse sclerosis of the surrounding stroma. The ultimate results depend on at least three factors: radiosensitivity of the tumor cells, size of the vascular spaces, and asso-



Fig. 1.—A typical good result of radium. A before and B after treatment. No other form of therapy could equal this cosmetic result.

usually one-fourth inch (0.6 cm.), the time from two to two and one-half hours; therefore the dose is from 200 to 250 milligram hours. The platinum filter will remove all the caustic beta rays, and the aluminum foil and rubber will remove most of the secondary rays from the primary filter. This combination filter gives a shorter and more uniform wavelength. The radium

4. This dose over an area from 1 to 1½ inches in diameter usually produces an erythema in blonds and a suberythema in brunets in about seven to ten days. The University of Maryland Hospital has available 230 mg. of radium element distributed in tubes of 10 and 20 mg. strength, each with 1 mm. of platinum, and nineteen needles of 2, 5 and 10 mg. strength, each with a 0.5 mm. platinum filter.

5. Newcomet, W. S.: The Treatment of Nevi: A Review of Cases Treated During the Last Fifteen Years with Analysis of End Results, *Radiology* 22: 654-693 (June) 1934.

3. Figi, F. A.: Hemangioma of the Face, *Proc. Staff Meet., Mayo Clin.* 12: 437-422 (July 14) 1937.

ciated proliferation of connective tissue stroma. Each will be discussed separately.

Radiosensitivity.—By radiosensitivity is meant the amount and speed of response of tissues to the application of radium or roentgen rays. It is a complex biologic phenomenon depending on several factors, two of which every one has agreed on: (1) the radiosensitivity of the tumor cells and (2) the radiosensitivity of the surrounding stroma.

1. According to Cutler, Buschke and Cantril,⁶ the radiosensitivity of tumor cells is separated into three forms: (a) inherent, (b) transient and (c) acquired.

(a) Every cell has a certain characteristic inherent radiosensitivity. We do not know much about this intracellular reaction but it is believed to be determined by the usual life history of the cell. Blood cells, especially lymphocytes, have a short duration of life; mesodermal cells, such as those of muscle, connective tissue or bone, have a longer duration of life, and nerve cells have the longest duration of life of any cells in the body. It is therefore easy to see that tumors developing from lymphatic tissue, i.e. in lymphosarcoma and Hodgkin's disease, are the most sensitive of all tumors to irradiation, while tumors developing from nerve cell origin, i.e. neuroma and neurogenic sarcoma, are the most resistant to irradiation. Lymphocytes are then the most radiosensitive cells, ovarian and testicular cells rank second, and hemangiomas probably about third. A hemangioma, then, is fairly sensitive to irradiation.

(b) By transient radiosensitivity is meant the cellular response during certain phases of the cell's life history. A cell is most radiosensitive during mitosis and this radiosensitivity decreases as the cell grows older.

(c) By acquired radiosensitivity is meant the alteration in the original, or inherent, radiosensitivity. Radiosensitivity is never increased during the life of a cell but it may be decreased by several factors, the most important of which is diminished blood supply. One way in which this may be brought about is by previous irradiation, which causes obliterative endarteritis and

hemangiomas but applies particularly to sarcomas and epitheliomas. The age of the individual is an important factor in determining acquired radiosensitivity, this being especially true with hemangiomas and to a lesser extent with sarcomas and epitheliomas. A hemangioma is most radiosensitive during the early months of life. The radiosensitivity decreases in direct proportion to the age of the individual. Radiosensitivity of heman-

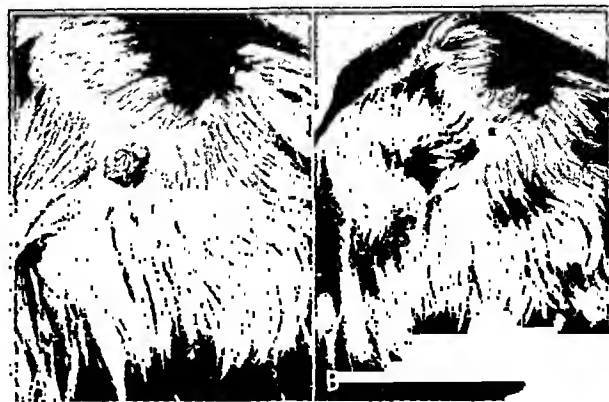


Fig. 4.—Papillomatous type of hemangioma of the scalp, A before and B immediately after treatment by electrodesiccation, showing a typical good result of electrodesiccation when the tumor has a narrow base. The dark spot in B is gentian violet applied to the desiccated area to show the amount of scar.

gioma is low in older children (over 3 or 4 years) and in adults hemangiomas are radioresistant.

2. The second known factor about radiosensitivity is the response of the stroma to irradiation. The tissues which make up the stroma supporting the tumor are mesodermal in origin, consisting of connective tissue, muscle, blood vessels and bone. The cells of these tissues, with the exception of blood vessels, are more radioresistant than the cells of hemangioma, epithelioma or even sarcoma, except neurogenic sarcoma. An epidermoid carcinoma developing in the region of the pharynx or tonsil is more radiosensitive than the same tumor histologically developing from the lip or growing as a metastasis in bone. In each case the surrounding stroma is different. The pharyngeal wall contains much lymphatic tissue, which is radiosensitive, the lip is made up of less radiosensitive muscle and connective tissue, and bone is still less radiosensitive. This is true to a lesser degree in hemangioma. A hemangioma beginning on the skin certainly seems more radiosensitive than the growth located in subcutaneous tissues, muscles or bone.

We have noted that hemangiomas containing large amounts of fat and connective tissue, which are firm and do not flatten out on pressure, also do not entirely disappear following irradiation. This is to be expected, as fat and connective tissue are resistant to the action of gamma rays of radium or roentgen rays. The vascular spaces become sclerosed, as evidenced by the change in color and partial reduction in size, and there is improvement but never a complete cure. Fortunately this mixed type of hemangioma is uncommon. It might be well to consider surgical excision at the outset of treatment in such cases provided the lesion is located on a site where excision is easily carried out.

The ultimate results of irradiation also depend on the size of the vascular spaces making up the tumor. A capillary hemangioma is a mass of small embryonic blood spaces with a supporting stroma. This is the usual type found in the skin; it may or may not be elevated, does not pulsate, usually blanches easily on



Fig. 3.—Hemangioma, A before and B after radium therapy. Severe infection followed treatment and trauma caused by scratching. Note involvement of eyelids and lips, a problem difficult or impossible to handle by plastic surgery. Marked scarring and residual patches of hemangioma remain. This is a bad result, but no other form of therapy would do as well. Solid carbon dioxide and electrodesiccation are to be used on the remaining patches of hemangioma. Much of this scar will soften with age.

a mild diffuse sclerosis, thus reducing the blood supply. Each course of irradiation makes a tumor more and more radioresistant. This is true to a certain extent of

6. Cutler, Max; Buschke, Franz, and Cantril, S. T.: *Cancer: Its Diagnosis and Treatment*, Philadelphia, W. B. Saunders Company, 1938, pp. 1-5.

pressure and is the most radiosensitive of all hemangiomas. The only difference between a capillary and a cavernous hemangioma is the size of the vascular spaces composing the tumor. A cavernous hemangioma, especially a large one, usually has one or more afferent and efferent vessels. These tumors often pulsate. Most large hemangiomas, subcutaneous hemangiomas and hemangiomas originating in internal organs, i. e. in the liver, spleen, tongue and muscle, are cavernous in type. Cavernous hemangiomas, as a general rule, do not respond quite as well to irradiation as the capillary group. Our explanation for the lesser effect of irradiation on cavernous hemangiomas is that the vascular spaces are too large to be readily obliterated by the doses of radiation usually employed.

In our experience naevus vinosus, or port wine stains, do not obey the usual laws of sensitivity to irradiation. Our results were poor with either radium or roentgen therapy, regardless of the age of the individual. Although port wine stains are capillary hemangiomas, we have no explanation as to why they do not respond to irradiation. They have no definite afferent and effer-



Fig. 5.—A, the usual amount of scar for a good result in a fair-sized hemangioma of the arm. B, large cavernous hemangioma of the back. The photograph was taken on admission. The patient was treated with three radium applications. Infection followed. A year later there was still a large amount of hemangioma and scarring. Excision advised but refused. In this type irradiation reduces the vascularity and thus makes excision safer.

ent vessel, usually are not elevated and do not pulsate. Of the present series 5.3 per cent were port wine stains, all of which were on the face.

Electrosurgery.—Superficial electrodesiccation and interstitial electrocoagulation are the second most common forms of therapy used in our clinic. Twenty-five per cent of all cases in this series had electrosurgery, alone or combined with radiation therapy. It is used for very small hemangiomas, especially if they are elevated and have a narrow base, i. e. less than 0.5 cm. in diameter. Many of these were resistant to treatment by solid carbon dioxide. Electrodesiccation for superficial lesions leaves the largest scar of any type of therapy, especially when used in large growths, and is therefore justifiable only when the lesion is quite small.

Interstitial coagulation is used in cavernous hemangiomas that have not responded well to irradiation (fig. 7 A, B and D). In many of these cavernous hemangiomas there is a larger portion of the tumor in the subcutaneous tissues than on the surface (fig. 7 D). The extent of this subcutaneous involvement is outlined

by the elevation and characteristic bluish discoloration. All the cavernous growths are first treated by one or more external applications of radium. Several months is required to obtain the full benefit of this irradiation, and then the residual hemangioma is treated by interstitial electrocoagulation (fig. 7 A, B and D). Because of location or large size, a few of these lesions are not suitable for electrocoagulation and excision is preferable. Radium makes these tumors less vascular and excision is safer. Our technic of interstitial coagulation is as follows: A very fine electrosurgical needle is inserted into the tumor and a coagulating current is turned on for approximately five seconds, or until the growth begins to look pale. This same procedure is done throughout the tumor, the needle insertions being equidistant and about 0.3 cm. apart. One such treatment is usually sufficient. The secret of success is a mild current which does not cause too much coagulation. This treatment is usually carried out under local anesthesia. Procaine hydrochloride anesthesia has the disadvantage that it causes edema of the tissues, an objection easily met by using a concentrated solution (2.5 per cent) and injecting at a 1 or 2 cm. distance, making a circular block anesthesia. The only complication of interstitial electrocoagulation is slough, which is always caused by overcoagulation and should be avoided. Experience is the best teacher in determining the optimum amount of coagulation necessary for a particular growth.

Solid Carbon Dioxide (carbon dioxide snow, "dry ice").—The third most common form of therapy we have used is solid carbon dioxide. It has won the favor of pediatricians throughout this country, but radiologists and plastic surgeons have been less enthusiastic about it. Solid carbon dioxide causes the disappearance of the growth by the production of obliterative endarteritis and mild sclerosis of the surrounding stroma. If overdone, i. e. when used over ten seconds at one time, it acts as a caustic and may produce ulceration. It acts more quickly than irradiation and can be used more often, but it is not as efficient as a sclerosing agent. We have used it only for capillary hemangioma. Its action is too superficial to be of much value for a cavernous growth. Solid carbon dioxide is applicable for three types of hemangioma: 1. It is used for the small capillary variety, i. e. less than 0.5 cm. in diameter. It is hard to concentrate radium element in a plaque or roentgen rays into an area of such small size without the risk of resultant sclerosis, pigmentation and skin atrophy from irradiation of larger extent than the original growth (fig. 6 C). Solid carbon dioxide has the advantage that it can be cut to the exact size and shape of the lesion before treatment so that the scar, if any, will be no larger than the original growth. 2. Solid carbon dioxide is used for any patchy area of residual growth around the margins of a hemangioma previously treated by irradiation. It is true that further irradiation in these cases might cause a disappearance of the remaining hemangioma, but with this added irradiation there is a possible danger of increasing the amount of scarring, atrophy or telangiectasis. 3. Solid carbon dioxide is used in several areas where irradiation is contraindicated or mechanically impossible. We here record the twentieth case of hemangioma of the scrotum. It was successfully treated by solid carbon dioxide. Obviously, irradiation over the scrotum in infants is not without question and may be open to criticism. Testicular tissue is known to be very radio-

sensitive. Although we feel that the amount of irradiation required to eradicate hemangioma of the scrotum is probably insufficient to damage the deeper lying testicle, until further work has been done to determine the radiosensitivity of an infant's testicle it would seem safer not to use this form of therapy for hemangioma of the scrotum. The redundancy of the skin of the scrotum makes surgical removal relatively simple. Because of the inverse square law, damage to the ovaries would not be expected when treating hemangioma of the vulva. Solid carbon dioxide was much simpler to use in our case of hemangioma of the scrotum than surgical excision or electrodesiccation. It gave a nice result.

Solid carbon dioxide is used for almost all capillary hemangiomas about the eyelids, internal canthi, external canthi and adjoining regions (fig. 7C). It is mechanically almost impossible to keep radium directly on these lesions because of the constant movement of the eyelids. The eye is very resistant to irradiation, especially in the mild doses given for hemangioma, but the possibility of radium damage must always be borne in mind. With adults it is quite possible to protect the eye with lead plates of various shapes and sizes, but this is obviously impossible to do with infants.

Our technic for carbon dioxide therapy consists of direct application for from five to ten seconds, repeated at intervals of two months until the desired effect is obtained. The only important complication is ulceration, which can usually be prevented by using less intense freezing, never lasting over ten seconds at one séance.

Sclerosing Solutions.—Our experience with sclerosing solutions is not sufficient to warrant accurate comment. Malkin⁷ has been successful with this form of therapy for hemangioma of the eyelid. Andrews and Kelly⁸ had satisfactory results in twenty cases. They claimed improvement even for port wine stains. It seems that a more extensive use of this agent is necessary before it can be accurately compared with other methods.

Interstitial Radium.—This has never been used in our clinic for hemangiomas. Where used, however, it has practically the same indications as outlined for interstitial electrocoagulation. Brown and Byars⁹ advocate this type of therapy and have been successful with it. External irradiation is the best of all sclerosing agents, as the rays diffuse equally throughout all parts of the growth. We believe it is possible to give as much irradiation as is safe for a particular hemangioma by the external method without having to resort to radium element needles or radon seeds interstitially.

Surgical Excision.—This is probably the oldest form of eradication of hemangiomas. Many times it is the quickest way of eliminating the disfigurement, especially when the lesion is located in skin that can be easily closed, i. e. on the back, abdomen, chest and occasionally face. About the eyelids and lips, particularly when the mucosa of the mouth is involved, excision may necessitate extensive plastic procedures. Such measures are not without residual scarring. To obtain the best surgical cosmetic results in extensive cases, two or more operations may be required. Surgical treatment of hemangioma means hospitalization and

general anesthesia, the latter not without some risk, slight to be sure. All this was avoided in 87 per cent of the cases by using proper irradiation or irradiation followed by touching up small areas with solid carbon dioxide, with cosmetic results comparable to surgical scars. In this series surgical excision has not been performed. In private practice we have had an occasional case which required surgical excision after irradiation.

Port Wine Stains.—Two cases of naevus vinosus, or port wine stains, were treated by radium alone or combined with roentgen therapy. This work was more or less experimental. There was usually some fading out of the redness, but as a general rule the results were unsatisfactory. The preferable treatment for port wine stains is surgical excision if possible, followed by skin

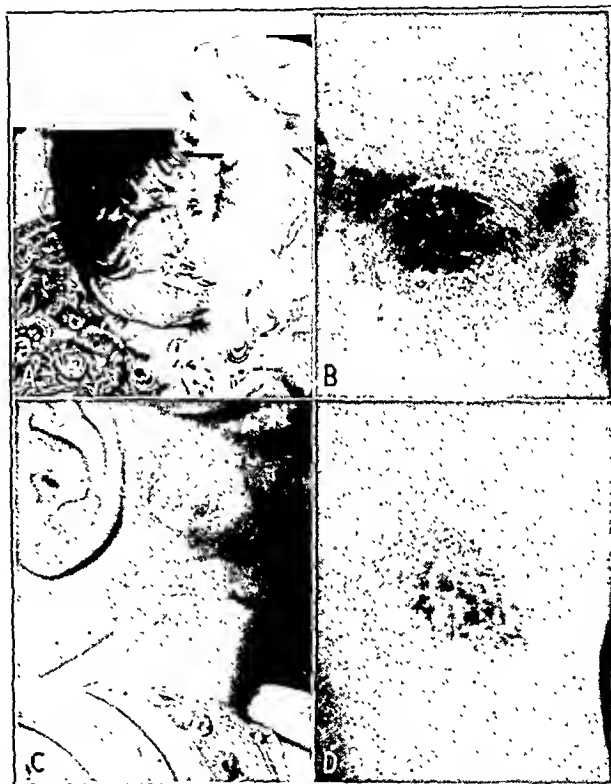


Fig. 6.—A, atrophy of skin and loss of hair following radium treatment. Hemangioma developed by the side of the original growth. Early treatment usually prevents this extension. B, infected hemangioma on the popliteal space, the result of recent irradiation and trauma from scratching. This will leave an unsatisfactory scar. C, patches of residual hemangioma, telangiectasis and scarring following three radium treatments and several applications of solid carbon dioxide. A typical poor cosmetic result. This will improve with age. D, residual patches of hemangioma of the forearm and mild scarring following radium therapy. A typical poor result from radium. Excision to follow.

grafting when necessary. We have not used ultraviolet irradiation, but in the hands of some men, notably Blaisdell¹ and McCollum,¹⁰ it has given promising results. McCollum advises giving one erythema dose weekly for from four to nine months, using an air-cooled ultraviolet Kromeyer lamp. He reports 80 per cent of his patients well or much improved.

COMPLICATIONS AND RESIDUALS

The complications following radiation therapy are immediate (within two or three weeks) or late. The most important immediate complication is infection

7. Malkin, Boris: Treatment of Angioma of Eyelid by Injection of Sclerosing Solutions, Arch. Ophth., 16: 578-584 (Oct.) 1936.
8. Andrews, G. C., and Kelly, R. J.: Treatment of Vascular Nevi by Sclerosing Solutions, Arch. Dermat. & Syph., 26: 92-94 (July) 1932.
9. Brown, J. T., and Byars, L. T.: Interstitial Radiation Treatment of Hemangiomas, Am. J. Surg., 39: 452-457 (Feb.) 1938.

10. McCollum, D. W.: Treatment of Hemangiomas, Am. J. Surg., 29: 32-35 (July) 1935.

(fig. 6B). It was seen in a few cases of overirradiation, with blister formation, scabs and other features. It may also follow trauma to the growth. Infants often cause irritation by scratching a freshly irradiated area. Several patients in this series were infected and had ulceration on admission. All patients who have infection, with or without irradiation, are always left with more scar (fig. 3B).

There are several late residuals and they are present, in order of their frequency and importance, about as follows: (1) sclerosis, (2) telangiectasis, (3) residual tumor, (4) increased pigmentation, (5) atrophy of skin, (6) loss of hair, (7) chronic radium ulcerations and (8) epiphyseal injury.

1. *Sclerosis*.—To a varying degree sclerosis of tissues follows practically all therapeutic doses of irradiation

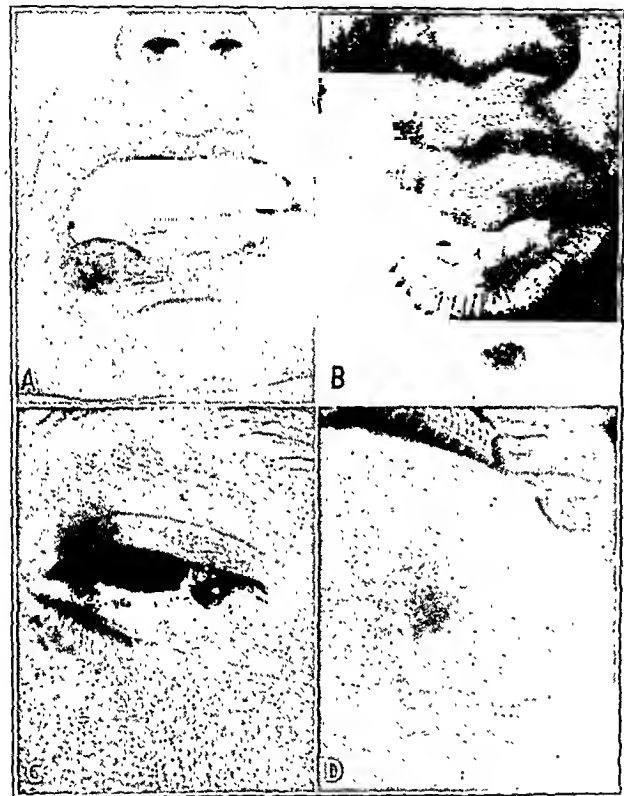


Fig. 7.—A, residual tumor of the lip following radium therapy. Interstitial electrocoagulation with a good result. B, typical hemangioma of the eyelid. Solid carbon dioxide or electrodesiccation was advised but refused. C, typical hemangioma of the eyelid. Solid carbon dioxide or electrodesiccation was advised but refused. D, a large subcutaneous cavernous hemangioma of the back after three radium treatments. Notice some residual growth present. Interstitial electrocoagulation is the proper treatment for this residual of subcutaneous hemangioma.

for hemangioma. Sclerosis is spoken of as a complication only when the scar tissue is thick and tough enough to give a poor cosmetic result. Sclerosis results from overirradiation, an insufficient filter or direct contact radium. One treatment of radium for hemangioma should never be above 250 milligram hours, preferably from 175 to 200 milligram hours, using the technic outlined previously. Beta rays from an insufficient filter, secondary rays from the primary filter, and direct contact radium are frequent causes of sclerosis; hence the importance of proper filtration. The scarring may be even or patchy. When present to such an extent that the cosmetic result is poor, excision is the proper therapy. It is the most common late residual but not particularly noticeable except in a few cases.

2. *Telangiectasis*.—This is a fairly frequent residual. In a general way the number of patients showing it is directly proportional to the quantity of radiation given. Our observations are that the quality of radiation makes no difference. It is often very difficult to distinguish between residual hemangioma and telangiectasis (fig. 6C and D). This is a very important differentiation because hemangioma needs more treatment, but further irradiation would very likely accentuate telangiectasis. As a general rule telangiectasis occurs around the periphery of a treated growth, the vessels have a spider web distribution, and it disappears poorly on pressure.

3. *Residual Tumor*.—Residual patches of hemangioma (figs. 3B, 6C and D) are a fairly frequent and very unfortunate complication. They may follow even after several radium treatments. Our explanation for this has been given in a previous paragraph. Residual tumor occurs more often in cavernous hemangioma than in the capillary form. Residual hemangioma in the capillary type of growth is treated by solid carbon dioxide and occasionally electrodesiccation, while residual patches in the cavernous type are treated by interstitial electrocoagulation. In a few of these cases surgical excision with skin grafting if necessary may give the best plastic result. This is one of the most important of all residuals.

4. *Increased Pigmentation*.—Increased pigmentation occurs to a slight extent in almost every case immediately after irradiation. The amount of pigmentation is generally in direct proportion to the amount of radiation given. This increased pigmentation fades out with time, the improvement being greater the younger the patient.

5. *Atrophy of Skin*.—Atrophy of skin may result from three causes: (1) pressure of the underlying tumor, (2) invasion of the skin by the proliferating blood vessels of the tumor, and (3) overirradiation. In many hemangiomas there is a mild degree of the first type of atrophy, occasionally sufficient to leave an appreciable atrophic scar. Overirradiation and an insufficient filter are the more common causes of skin atrophy. It occurred to a marked degree in only 1 per cent of this series (fig. 6A). Atrophy, of course, is closely associated with scarring. Almost every case of marked sclerosis will have a slight amount of atrophy.

6. *Loss of Hair*.—Loss of hair occurs immediately after every irradiation for hemangioma of the scalp. The hair usually returns after several months, but there are cases (2 per cent in this series) in which the hair over the treated area never returned (fig. 6A). The hair follicles were destroyed. From a fairly extensive review of the literature we were impressed by the fact that this residual effect of irradiation has not been stressed. It is important to bear this depilating effect of overirradiation in mind in planning treatment for hemangioma of the scalp. Probably milder treatments repeated over a longer period may prevent this complication. As a rule, such a bald spot is readily covered by the hair and is not noticeable.

7. *Chronic Radium Ulcerations*.—Irradiation ulcerations are uncommon complications. They occur from overirradiation, improper filters and secondary infections, or occasionally in a blond person whose skin is very radiosensitive. This has never occurred in our clinic, but a busy plastic surgeon will see it a few times every year. Davis and Wilgis¹¹ and many others have stressed the importance of irradiation injuries.

11. Davis, J. S., and Wilgis, H. E.: Treatment of Hemangiomas by Excision. South. M. J. 27: 283-290 (April) 1934.

8. *Epiphysial Injury.*—Epiphysial injury with later disturbance in the growth of bone is an uncommon complication of irradiation. With proper irradiation by radium, the depth dosage is usually too small to cause epiphysial injury. High voltage roentgen therapy is more penetrating and will cause epiphysial injury, but the usual small doses used in treating hemangiomas should seldom cause permanent damage. We have not seen epiphysial injury in this series. Plastic surgeons, for instance Davis¹¹ of Baltimore, emphasize the possibility of this complication of irradiation.

RESULTS

Every new patient who comes to the Oncology Clinic of the School of Medicine of the University of Maryland is seen by a radiologist and a surgeon for an unbiased opinion on the proper therapy. In discussing results we consider any and all forms of therapy, whether used alone or combined. Radium therapy is becoming more and more popular throughout the world, particularly in tumor clinics, and this has been by far our most common form of treatment.

Our results are classified as (1) good, (2) satisfactory, and (3) poor.

1. By a good result from radiation therapy is meant the entire disappearance of the tumor with no disfiguring patches of hemangioma, scarring, telangiectasis, atrophy, loss of hair, increased pigmentation, epiphysial injury or other residuals. It is to be remembered that some slight scarring remains after any form of therapy, but our definition of a good result is one in which the amount of scarring is no more noticeable than the fine linear scar following surgical excision. Of this series of ninety-four cases, all of which were superficial, the results were considered good in 40 per cent. The best results were obtained in infants below 2 years of age. After the period of infancy, the good results of irradiation decreased in direct proportion to age.

2. The results were satisfactory in 47 per cent of the cases. In this group also we compare the end results with what might have been accomplished by surgical excision. The reason for this comparison is that surgical excision is the older form of treatment for hemangiomas. Included in this satisfactory group are all cases in which there is a slight or moderate amount of scarring or telangiectasis, or small patches of tumor remain, or the tumor is entirely gone but the cosmetic result is only satisfactory. In this group too are placed many of the larger hemangiomas, especially of the face (fig. 3 *A* and *B*), where surgical treatment was out of the question because of the size of the growth or extensive involvement of eyelids, lips or nose. There has been a tremendous improvement in many of these cases, but obviously not a "good" result. In many of these cases the pronounced scarring (fig. 3 *B*) will improve with age, ultimately giving a more satisfactory result.

3. In the group yielding poor results (13 per cent in this series) are included: (1) all port wine stains (5.3 per cent), which are all radioresistant; (2) most hemangiomas in adults which were radioresistant and which were finally treated with electrosurgery or surgical excision, and (3) all cases in which the residuals, such as patches of tumor, telangiectasis, atrophy or loss of hair, were so pronounced that the cosmetic result was considered bad.

There are many who think that primary excision of hemangiomas without previous irradiation is the treatment of choice. They argue that time and expense will be saved by primary excision and that a cosmetic result

equal to or better than irradiation will be obtained.¹² We contend that irradiation gives good or satisfactory results in a high percentage of cases (87 per cent in this series) and therefore that surgical treatment is unnecessary for the majority of hemangiomas. In many cases of failure by irradiation (fig. 6 *C* and *D*) surgical excision gives the same linear scar that primary excision would have given. The cavernous growths that have to be excised surgically are much less vascular and operation is safer if preoperative irradiation has been given.

CONCLUSIONS

It is our opinion that as a general rule radium gives good results in a large percentage of cases of superficial hemangioma. A fairly extensive review of the literature on hemangiomas reveals that most articles deal with case reports of unusual types, successful cures by various methods of therapy advocated by many authors, and general discussions on the pathology of hemangiomas, but there was not much emphasis on the failures, complications and late residual effects of irradiation. The patients with bad results are commonly seen by plastic surgeons and do not return to the irradiation therapist unless carefully followed.

Radium has its greatest value for capillary and cavernous hemangiomas in young infants. Cavernous hemangiomas are treated best by external radium and, after several months, by interstitial electrocoagulation for the residual growth. External radium is by far the best and gives the most equally diffuse sclerosing effect of any of the sclerosing agents. Irradiation has given poor results in port wine stains.

Solid carbon dioxide is used for very small hemangiomas, residual patches of hemangioma, telangiectasis around the periphery of a lesion previously treated by irradiation, hemangiomas around the eyelids, and hemangiomas of the scrotum.

We believe that good results can usually be obtained in superficial hemangiomas, but only when the surgeon understands the indications, contraindications and limitations of all forms of treatment, including radium and roentgen therapy, the principles of good plastic surgery and electrosurgery. It is certain that a working knowledge of only one type of therapy will not give good results in all types of superficial hemangiomas.

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12. The total expense of irradiation of hemangiomas is not comparable to the cost of hospitalization plus surgeon's fees. In private practice rarely is more than \$25 charged for one treatment, and frequently the fee is less. A larger amount may be charged in cases of multiple hemangioma. We calculate radium overhead on a basis of 3 cents per milligram hour; an average treatment then would give an overhead of \$7.50. Whatever is collected over this amount is considered as professional fee and varies with the financial status of the patient.

History of Helium.—Helium was discovered in the sun in 1868 by Janssen and Lockyer by means of the spectroscope. Its existence on earth was demonstrated by Ramsay, who obtained it from the mineral cleavite. It was later found to be a constituent of the atmosphere to the extent of one part in 200,000. Recently it has been found to occur in certain natural gases. . . . In 1923 a patent was registered in the United States Patent Office by Charles Cooke for the use of helium with oxygen for divers, based on the fact that helium has a coefficient of solubility approximately half that of nitrogen, and because it is twice as diffusible. Sayers and Yant in 1926 decompressed animals from 10 atmospheres of helium-oxygen mixtures in from one-third to one-fourth the time necessary for nitrogen-oxygen mixtures and found no toxic effects from the use of helium under high pressures for short periods.—Baraeh, Alvan L.: *The Therapeutic Use of Gases*, chapter XIII in *The Therapeutics of Internal Medicine*, New York, D. Appleton-Century Company, Inc., 1940.

THE DIAGNOSIS OF NEUROPATHIC JOINT DISEASE (CHARCOT JOINT)

AN ANALYSIS OF FORTY CASES

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AND

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Although seventy years have passed since Charcot¹ described the type of joint disease which bears his name, physicians are still far from a complete understanding of its development. Its diagnosis is relatively simple if one bears in mind certain clinical and radiologic characteristics; yet the presence of a Charcot joint is frequently overlooked, especially in the early stages. The experiments of Eloesser,² who produced neuro-arthropathies in cats by traumatizing their joints after their limbs had been rendered anesthetic through the severance of the posterior nerve roots, confirm the usually accepted theory of pathogenesis that attributes the development of the Charcot joint to the effect of a single injury or repeated injuries on an articulation which

to the development of a neuro-arthropathy. A similar loss of sensibility in the joint may occur in syringomyelia, injuries to the spinal cord and leprosy. The characteristics of a Charcot joint, in the order of their usual appearance, are an enlargement of the joint resulting from an effusion, a relaxation of its ligaments lead-

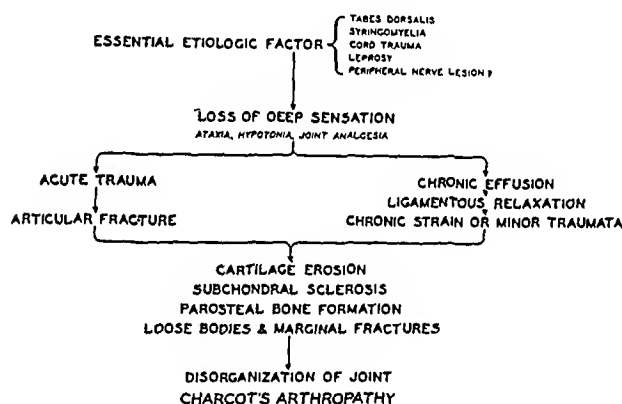


Fig. 1.—Evolution of a neuropathic joint.

has lost its sensibility to pain. Space does not permit an adequate review of the articles which have dealt with the clinical and pathologic aspects of neuropathic joint disease. Deserving special mention, however, are papers by Key,³ Steindler,⁴ Moritz,⁵ Wile and Butler,⁶ Knutson⁷ and Potts.⁸

Tabes dorsalis, though most frequently the underlying disease, is not the only condition which may lead

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This material was demonstrated in space 522 in the Scientific Exhibit at the Eighty-Ninth Annual Session of the American Medical Association, San Francisco, June 13-17, 1938.

1. Charcot, J. M.: *Lectures sur les maladies du système nerveux*, 1868, New Sydenham Series: *Sur quelques arthropathies qui paraissent dépendre d'une lésion du cerveau ou de la moelle épinière*, Arch. de physiol. norm. et path. 1: 161, 1868.

2. Eloesser, Leo: *On the Nature of Neuropathic Affections of the Joints*, Ann. Surg. 66: 201 (Aug.) 1917.

3. Key, J. A.: *Clinical Observations on Tabetic Arthropathies (Charcot Joints)*, Am. J. Syph. 16: 429 (Oct.) 1932.

4. Steindler, Arthur: *The Tabetic Arthropathies*, J. A. M. A. 96: 250 (Jan. 24) 1931.

5. Moritz, A. R.: *Tabische Arthropathie, histologische Studie*, Virchows Arch. f. path. Anat. 267: 746, 1928.

6. Wile, U. J., and Butler, M. G.: *A Critical Survey of Charcot's Arthropathy: Analysis of Eighty-Eight Cases*, J. A. M. A. 94: 1053 (April 5) 1930.

7. Knutson, Folke: *The Pathogenesis of Tabetic Skeletal Disease*, Acta radiol. 18: 219, 1937.

8. Potts, W. J.: *The Pathology of Charcot Joints*, Ann. Surg. 86: 596 (Oct.) 1927.

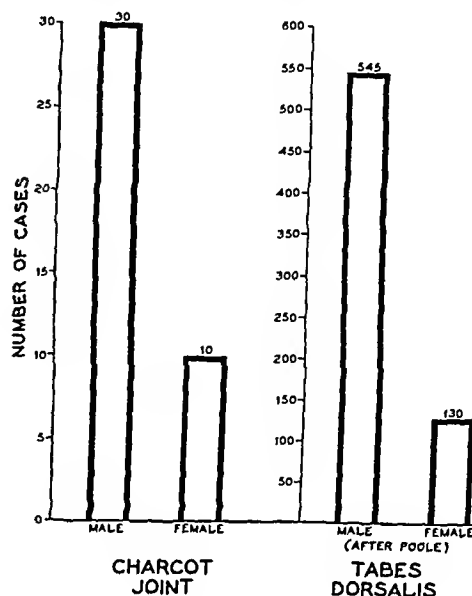


Fig. 2.—Sex incidence.

ing to instability and deformity on weight bearing, and thinning of the articular cartilages, marginal fractures, sclerosis of subchondral bone in some areas and atrophy of the bone in other regions, loose bodies in the joint, and the formation of new bone (parosteal bone) outside the joint cavity. Many of these later features are

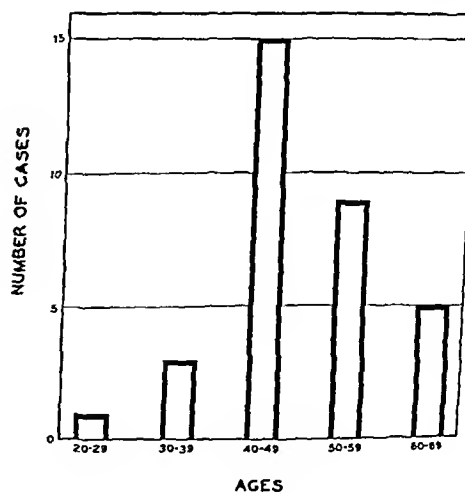


Fig. 3.—Age incidence: age of onset of Charcot joint.

demonstrated by roentgenograms. The most striking clinical observation is the absence of pain in the presence of such an advanced pathologic process. The foregoing series of changes may be initiated by a fracture in a joint which appears normal. The observations and theories which explain the evolution of a neuro-arthropathy are best shown diagrammatically (fig. 1).

In order to present graphically the clinical picture of a neuropathic joint, a series of forty cases of tabetic arthropathy was analyzed. The series includes the records of both private and clinic patients, about half of whom we ourselves observed. The diagnosis was well established in each case. A comparison of the sex incidence in this series with the observation, by Poole,⁹ of the preponderance of male tabetic patients indicates an equal susceptibility of the two sexes to involvement of the joint, once the underlying disease is present (fig. 2). The average age at onset of symptoms in the joint appears to be between 45 and 50 years (fig. 3), the extremes being 29 and 68 years. The influence of trauma on the development of the arthropathy is seen in the ratio between the number of cases involving the lower extremities, fifty, and the number involving the upper extremities, seven (fig. 4). The importance of severe trauma in the initiation of the series of changes leading to a Charcot joint is further indicated by the history of the onset of symptoms immediately following an acute injury in eighteen cases, or almost half of the total number. The tendency to bilateral involvement is seen in sixteen cases in which two or more joints were affected. In this group both knees were involved in seven cases, both hips in four cases, both ankles in one

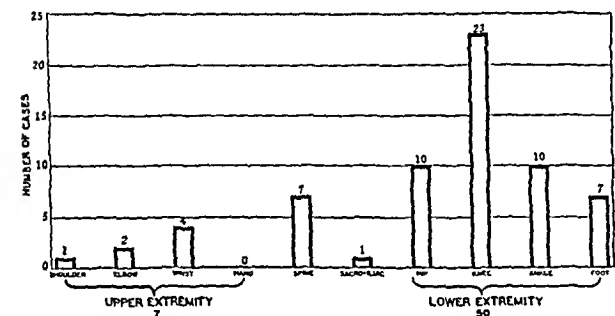


Fig. 4.—Joint involvement.

case and both wrists in another case. This occurrence of multiple Charcot joints in 40 per cent of our entire series, as compared with the usually accepted incidence of arthropathy in *tabes dorsalis* (6 per cent in a group of 744 cases of *tabes* cited by Moore¹⁰), suggests that certain victims of *tabes* have a predisposition to involvement of the joints. The importance of the careful observation of the pupillary and deep reflexes is shown by their almost universal impairment in the cases in our series (fig. 7), in contrast to the unreliability of the usual laboratory tests for neurosyphilis in the stage of the disease at which the arthropathy appears (fig. 8).

The microscopic changes which occur in the various components of a joint during the development of a neuro-arthropathy were described by Steindler⁴ and by Moritz.⁵ Studies of microscopic sections from eight Charcot joints in our series indicate that the primary pathologic process is a degeneration and partial disappearance of the articular cartilage which is invaded by fibrous connective tissue from the pannus on its surface (fig. 5). In certain areas the zone of preliminary calcification is exposed by the stripping away of cartilage. Beneath this zone there may be a proliferation of cartilage which becomes converted into

subchondral bone, thus accounting for the sclerotic eburnated bone seen at the base of large defects in the articular cartilage (fig. 6). A generalized atrophy of

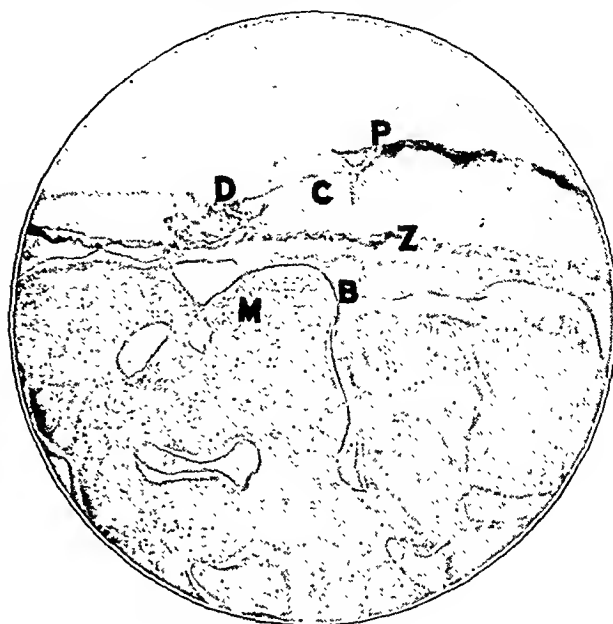


Fig. 5.—Articular surface of head of femur; patient O. V., aged 56, with Charcot hip of eighteen months' duration. P, fibrous tissue pannus on surface of cartilage; C, hyaline cartilage; D, degenerating area of cartilage invaded by fibrous tissue; Z, zone of preliminary calcification; B, subchondral bone; M, marrow. Slightly reduced from a photomicrograph with a magnification of 40 diameters.

the trabeculae of the cancellous bone is often seen. In one instance we observed a perivascular infiltration of lymphocytes in the capsule of the knee joint, although such evidence of inflammatory reaction is rare.

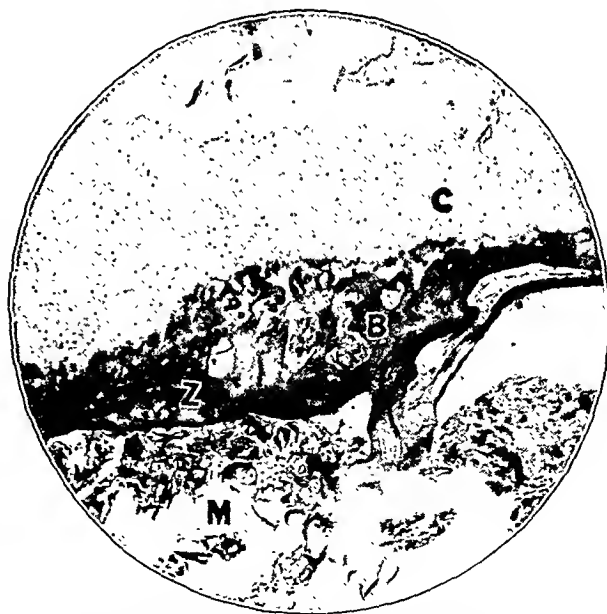


Fig. 6.—Articular surface of knee; patient K. S., aged 54, with Charcot knee of three years' duration. C, hyaline cartilage showing partial erosion; B, thickened subchondral bone forming under thinning cartilage; Z, zone of preliminary calcification; M, marrow. Slightly reduced from a photomicrograph with a magnification of 40 diameters.

In addition to the factors which lead to the disintegration of a joint, as shown in figure 1, we observed the presence of pyogenic organisms in an affected

9. Poole, A. K., cited by Weinberg, E. D.: *The Treatment of Charcot Joints*, South. M. J. 23: 527 (June) 1930.

10. Moore, J. E.: *The Modern Treatment of Syphilis*, Springfield, Ill., Charles C. Thomas, 1933, p. 394.

joint, as previously reported by Shands.¹¹ This author, in studying the synovial fluid from ten Charcot joints, found streptococci in two knees and Staphylococcus aureus in one shoulder. In our series of six joints on which operations were performed, culture of material obtained at operation from one knee yielded a mixture of hemolytic streptococcus and Staphylococcus aureus. In this case the operative wound suppurated and the joint failed to fuse. This experience indicates the importance of obtaining a bacteriologic study of the synovial fluid before operating on a Charcot joint.

SUMMARY AND CONCLUSIONS

1. The diagnosis of a neuro-arthropathy rests on the observation of a swollen, relaxed and disorganized joint which is comparatively painless, in a case present-

	NO REACTION TO LIGHT	SLUGGISH PUPILS	REACT TO LIGHT	NO RECORD
PUPILLARY REFLEXES TO LIGHT	25	6	6	1
DEEP REFLEXES	KNEE JERKS			
	ABSENT	SLUGGISH	ACTIVE	NO RECORD
	31	4	4	1
	ANKLE JERKS			
	ABSENT	SLUGGISH	ACTIVE	NO RECORD
	28	3	2	7

Fig. 7.—Reflexes of tabetic arthropathies.

ing the clinical signs of tabes dorsalis, syringomyelia or other involvement of the spinal cord.

2. A series of forty cases presenting sixty-five tabetic arthropathies was tabulated according to sex incidence, the age at which symptoms in the joint began, the occurrence of acute trauma as an initiating factor, the dis-

	POSITIVE				NEGATIVE	NO RECORD
	+	++	+++	++++		
BLOOD WASSERMANN	1	1	4	8	18	1
SPINAL FLUID WASSERMANN	4	1	8	5	10	11
GOLD CHLORIDE CURVE	PARETIC					
	TABETIC					
	4	5	1	5	8	17

Fig. 8.—Serologic reaction of tabetic arthropathies.

tribution of involvement of the joints, and the serologic and reflex features.

3. The positive clinical evidence of rigid pupils and absent knee jerks is of much greater importance in the diagnosis of a tabetic arthropathy than are the various tests which are performed on the blood and spinal fluid.

4. A culture of the synovial fluid should be made prior to any operative procedure on a Charcot joint.

350 Post Street.

11. Shands, A. R., Jr.: Synovial Fluid in Infectious and Neuropathic Arthritis. *South. M. J.* 23: 818 (Sept.) 1930.

KERATOSIS BLENNORRHAGICA

A BRIEF REVIEW AND REPORT ON THE EFFECTS OF HYPERPYREXIA IN ITS TREATMENT

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In 1893 Vidal¹ described a generalized symmetrical eruption involving the nails in a patient with gonorrheal polyarthritides. In 1912 Simpson² described the first case occurring in the United States. Keim³ in 1924 observed and recorded a similar case in which he made minute microscopic studies and reviewed all the pertinent literature, analyzing the disease from an etiologic angle and differentiating it from pustular psoriasis. Since 1924 there have been numerous additions to our knowledge of this syndrome, particularly concerning its response to treatment. Our purpose is to review briefly the more recent literature and to record studies made on two patients who have been under our care at Bellevue Hospital.

ETIOLOGY

The genesis of keratosis blennorrhagica has been discussed by Gënner and Boas,⁴ Scmazzone,⁵ Rostenberg and Silver⁶ and Ormsby in the discussion of a paper by Ebert and Slepian,⁷ the consensus being that the cutaneous reaction is an allergic expression of a sensitized skin, similar to the conception of the tuberculid reaction. Chauffard and Fiessinger⁸ interpret the lesions as a manifestation of gonococcal septicemia in the presence of a severe arthropathy, although the finding of the gonococcus in the lesions has been infrequent. Barrett,⁹ Wadsack,¹⁰ Campbell,¹¹ DuBois,¹² Hansteen,¹³ Scholtz¹⁴ and Gager¹⁵ report the isolation of a gram-negative diplococcus, but most attempts have been unsuccessful.

Results of efforts to induce lesions artificially by auto-inoculation have been inconsistent. Lees and Percival¹⁶

From the Department of Dermatology, New York University College of Medicine, and the Third (New York University) Medical Division, service of Dr. Edward R. Maloney.

1. Vidal, E.: Eruption généralisée et symétrique de croûtes cornées avec chute des ongles d'origine blennorrhagique, coïncidant avec une polyarthrite de même nature: Récidive à la suite d'une nouvelle blennorrhagie deux ans après la guérison de la première maladie. *Ann. de dermat. et syph.* 4: 3, 1893.

2. Simpson, F. E.: Keratoderma blennorrhagique. *J. A. M. A.* 59: 657 (Aug. 24) 1912.

3. Keim, H. L.: The Histogenesis of Keratoderma Blennorrhagicum. *Arch. Dermat. & Syph.* 9: 423 (April) 1924.

4. Gënner, V. G., and Boas, Harold: Case of Gonorrheal Hyperkeratosis Without Gonorrhea. *Hospitalist.* 73: 395 (March 27) 1930; *Urol. & Cutan. Rev.* 34: 365 (June) 1930.

5. Scmazzone, T.: Considerazioni sulla patogenesi della cheratoderma blennorrhagica. *Gior. ital. di dermat. e sif.* 72: 716 (June) 1931.

6. Rostenberg, Adolph, and Silver, Henry: Keratoderma Blennorrhagicum. *Arch. Dermat. & Syph.* 16: 741 (Dec.) 1927.

7. Ebert, M. H., and Slepian, A. H.: A Case for Diagnosis (Keratosis Blennorrhagica?). *Arch. Dermat. & Syph.* 37: 106 (Jan.) 1938.

8. Chauffard, A., and Fiessinger, N.: Deux cas de kératose blennorrhagique: Reproduction. *Bull. Soc. franc. de dermat. et syph.* 30: 100 (Jan.) 1930.

9. Barrett, C. C.: Keratoderma blennorrhagicum. *Arch. Dermat. & Syph.* 22: 627 (Oct.) 1930.

10. Wadsack, E.: Ein gonorrhöisches Exanthem. *Berl. klin. Wchnschr.* 43: 966, 1906.

11. Campbell, J. R., cited by Sutton, R. L.: Diseases of the Skin, ed. 5. St. Louis, C. V. Mosby Company, 1923, p. 438.

12. DuBois, C.: Keratosis blennorrhagica ou dermatitis gonococciques. *Acta dermat.-venereol.* 3: 1, 1924; cited by Gans.¹³

13. Hansteen, E. H.: Kerato-is Gonorrhoea. *Internat. Clin.* 4: 62 (Dec.) 1927.

14. Scholtz, Moses: A Syndrome of Blennorrhagic Keratoderma. *Arch. Dermat. & Syph.* 15: 165 (Feb.) 1927.

15. Gager, E. C.: Keratoderma Blennorrhagica. *J. A. M. A.* 78: 941 (April 1) 1922.

16. Lees, David, and Percival, G. H.: Keratoderma Blennorrhagicum. *Lancet* 2: 1116 (Nov. 21) 1931.

obtained positive results by scarification, using pus obtained from the urethra. They were able also to produce similar lesions using cultures of gonococci. Sullivan, Rolnick and White¹⁷ produced lesions by inoculation of scarified areas with scrapings taken from the exposed base of a lesion. However, Haase¹⁸ maintains that any abrasion of the skin during the height of the eruption will result in the formation of a keratosis.

INCIDENCE

This type of cutaneous lesion occurs in ratios ranging from 1:5,000 (Harrison¹⁹) to 1:7,500 (Brown²⁰) cases of gonorrheal urethritis. It occurs almost exclusively in men during the third and fourth decades. Arning and Meyer-Delius,²¹ who have had opportunity to study a large number of cases, report its frequency as about 0.46 per cent in 4,300 cases of gonorrheal urethritis. Isaac,²² Lees,²³ Wayson,²⁴ Robert,²⁵ Lévy-Franckel,²⁶ Finlay,²⁷ Beatty²⁸ and Goldmann²⁹ have reported cases observed in women, but in some of them doubt was expressed by the author as to the accuracy of the diagnosis of a coexisting gonorrhea.

The disease is rare; Keim³ in 1924 was able to find only fifty-eight cases in the literature. In 1933 Chambers and Koetter³⁰ listed sixteen additional cases including one of their own. Since then we have found nineteen case reports, making a total of ninety-three.

CLINICAL COURSE

The onset of keratosis blennorrhagica is insidious and follows chronic and recurrent attacks of gonorrheal urethritis associated with chronic prostatitis and seminal vesiculitis. Chills and fever of a septic type herald the appearance of each crop of new lesions. In extensive cases there is profound prostration, anorexia and great loss of weight. The distribution of the eruption is symmetrical. There is a predilection for the soles and palms, genitals and groins. Less often the scalp, dorsum of the hands and feet, forearms and legs are involved. Lesions may also be found on the trunk, but this region and the face are not frequently affected. Barrett,⁹ Berman,³¹ Sherman, Blumenthal and Heidenreich,³² Génner and Boas⁴ and Chambers and Koetter³⁰ report lesions seen on the mucosa of the cheeks, tongue and hard palate.

As long ago as 1899 Buschke³³ recognized a variety of cutaneous lesions occurring in patients suffering from

gonorrheal urethritis. He classified these as (1) simple erythema, (2) urticaria, (3) erythema nodosum, (4) hemorrhagic and bullous exanthems and (5) keratoses. Twelve years later³⁴ he modified this conception, recognizing only the keratoses, interpreting the other lesions merely as evolutionary, in which the dermal inflammatory process had been insufficient in duration or intensity to produce the typical crusts and scales.

Lesions of Palms and Soles.—Briefly stated, the pathologic process consists of vesiculation, pustulation and crusting with associated keratosis. The lesion at its inception consists of an erythematous macule. Hodara³⁵ recognized an urticarial wheal as the earliest manifestation in some cases. Nevertheless this type of



Fig. 1 (case 2).—Keratoses on dorsum of feet.

lesion is short lived, developing into a tiny vesicle surrounded by an erythematous halo. The lesion varies in size from pinhead to about a centimeter in diameter. It arises deep in the epidermis, since it contains an exceptionally small amount of cloudy fluid and may be called a dry vesicle, similar to those so frequently seen in dermatophytids and microbids. In a short time the lesion becomes waxy and almost translucent, like a pustule, although on incision it is perfectly dry. In the center a yellow spot appears, giving it an umbilicated appearance; but on palpation it is found to be a horny excrescence. Sometimes there is a peripherally attached scale suggesting the collaret of Bielt seen in early papules of syphilis in the same location. Often there is definite grouping and confluence of individual papules to form circinate and serpiginous patches with

17. Sullivan, S. J.; Rolnick, H. C., and White, C. J.: Gonorrheal Keratosis: Case Report with Experimental Studies, Illinois M. J. 59: 45 (Jan.) 1931.

18. Haase, M.: Keratosis Blennorrhagica; with Report of a Case, J. Cutan. Dis. 34: 817 (Dec.) 1916.

19. Harrison, L. W.: Venereal Disease in General Practice, London, Oxford University Press, 1918.

20. Brown, W., and Hargreaves, H.: A Case of Gonorrheal Keratosis, Brit. J. Dermat. 29: 107 (April-June) 1917.

21. Arning, E., and Meyer-Delius, H.: Beitrag zur Klinik der gonorrhoeischen Hyperkeratosen, Arch. f. Dermat. u. Syph. 108: 13, 1911.

22. Isaac, C. L.: A Case of Keratoderma Blennorrhagica in a Woman, Brit. J. Dermat. 32: 195 (June) 1920.

23. Lees, D.: Keratoderma Blennorrhagica, Edinburgh M. J. 28: 99 (March) 1922.

24. Wayson, J. T.: Keratoderma Blennorrhagicum, Arch. Dermat. & Syph. 24: 291 (Sept.) 1931.

25. Robert, Emile: Contribution à l'étude des troubles trophiques cutanés dans la blennorrhagie, Thèse 300, Paris, 1897.

26. Lévy-Franckel, A.: Kératodermie Blennorrhagique, Ann. d. mal. vén. 13: 385, 1918.

27. Finlay, D. E.: Keratoderma Blennorrhagica, Brit. M. J. 1: 979 (June 6) 1931.

28. Beatty, J.: Symmetrical Hyperkeratosis of Extremities (Keratoderma Blennorrhagica), Brit. M. J. 1: 14 (Jan. 1) 1927.

29. Goldmann, B. A.: Keratoderma Blennorrhagica: Report of Cases, Pennsylvania M. J. 37: 299 (Jan.) 1934.

30. Chambers, S. O., and Koetter, G. F.: Keratosis Blennorrhagica, Arch. Dermat. & Syph. 27: 411 (March) 1933.

31. Berman, L.: Ueber einen Fall von gonorrhoeischer Keratose der Haut und . . . Ztschr. 51: 420, 1928.

32. Sheri . . . F., and Heidenreich, J.: Blennorrhagie bal . . . Arch. Dermat. & Syph. 39: 422 (March) 1899.

33. Buschke, Abraham: Evantheme bei Gonorrhoe, Arch. f. Dermat. u. Syph. 45: 181, 1899.

34. Buschke, Abraham: Ueber universell symmetrische entzündliche Hyperkeratosen auf uroseptischer und arthritischer Basis, Arch. f. Dermat. u. Syph. 41: 223, 1912.

35. Hodara: Ein Fall von Gonokokämie und generalisiertem gonorrhoeischem Exanthem, Dermat. Wchnschr. 55: 397, 1912.

scaling borders and clearing centers. Half the sole may be entirely covered by one of these caked, heaped-up serosanguineous plaques. It requires approximately three weeks for the development of the mature lesion. Removal of the mass of dried blood, serum and scales exposes a very superficial dusky red, slightly moist, eroded surface with little or no bleeding. If the lesion is untreated, new crusts form. Healing leaves no scar, although Keim observed a slight degree of atrophy in the larger lesions resulting from healing below the rupial crust.

Lesions of the Nails.—Changes occurring in the nails do not differ clinically from those seen in favus and arthropathic psoriasis. There is a heaping up of yellow waxy material beneath the distal end of the nail plate. The nail itself becomes dry, brittle and opaque and is lifted from its base. The free border is rough, broken



Fig. 2 (case 2).—Keratoderma of feet (a large keratosis on the left sole has been removed, exposing the base).

and jagged. These subungual keratomas are tender on pressure and may become painful. They may involve the nail independently or be continuous with keratoses of the adjacent integument of the fingers and toes, in which case there is an associated paronychia.

Lesions of the Mouth.—These consist of flat confluent grayish papules irregularly distributed over the hard palate, cheeks and borders of the tongue. They are usually not numerous and vary in size up to 0.5 cm. in diameter. At their inception they are minute red puncta which rapidly enlarge, so that within forty-eight hours they appear as umbilicated papules with an elevated grayish border. Their developmental cycle is much shorter than that of the cutaneous lesions; they disappear in a few days, leaving only dusky red eroded areas which heal without scarring.

Lesions of the Joints.—The arthropathy usually precedes the cutaneous lesions, although in rare instances it may be entirely absent. It differs from the usual gonorrheic monarthritides in the simultaneous involve-

ment of a large number of articulations. The knee, ankle, wrist and acromioclavicular joints are those commonly affected. The pains are excruciating, but there is not as much redness and periarticular edema as one sees in rheumatoid arthritis or in monarthritic gonorrheal arthritis.

The progress of the disease is chronic with remissions and recurrences accompanied by fresh crops of lesions attending exacerbations of febrile and arthritic symptoms or induced by the therapeutic injection of gonococcus vaccine. Earlier writers expressed the opinion that the application of casts to the legs in the treatment of the arthritis was responsible for the cutaneous lesions.

Pathologic changes in many other organs have been noted by various investigators. These include endogenous conjunctivitis, corneal ulceration, iridocyclitis, anterior synechiae and retinitis. There is an associated general adenopathy in most cases. Acute glomerular nephritis has been reported by Spink and Keefer.³⁶ Other manifestations occurring less frequently include aortitis, pericarditis and endocarditis with large verrucous vegetations on the aortic valves. Tenosynovitis, bursitis and hepatitis with hypochromic anemia have been recorded also as occurring during the course of the disease.

DIAGNOSIS

The recognition of keratosis blennorrhagica is not attended by any great difficulty when one considers the three essential requirements: the presence of gonorrhea, polyarthritides, and the characteristic cutaneous lesions. Jones³⁷ believes that the keratomas may constitute the only symptom other than the original gonorrheal urethritis.

Arthropathic psoriasis in former years offered some difficulty in differentiation. This is not unexpected, since the nail changes in the two conditions are similar and the cutaneous lesions of keratosis blennorrhagica and pustular psoriasis clinically and histologically resemble each other. Feldman³⁸ averred that he could see no difference between the clinical appearance of the two conditions. Silver³⁹ is of the opinion that keratosis blennorrhagica and psoriasis arthropathica constitute one syndrome with a variant etiologic factor. However, there are a few minor differences. Keratosis blennorrhagica at its inception is vesicular and shortly becomes pustular. Plasma cells are usually absent in arthropathic psoriasis. In arthropathic psoriasis there is a much greater tendency to ankylosis and deformity in the affected articulations. Furthermore, endogenous conjunctivitis never occurs in psoriasis.

Differentiation from syphilis may offer some difficulty. The superficial nature of the lesion should be sufficient to exclude the rupial syphilid. Some of the pustules look not unlike the early pustular eruptions but on palpation lack the shotty feeling. Acrodermatitis continua of Hallopeau must also be differentiated.

The search for gonococci in the skin has met with little success. Cole and Driver⁴⁰ found gram-negative intracellular diplococci in a smear from the base of a lesion on a patient's leg and from a miliary abscess on his scalp. The recovery of diplococci on blood culture

36. Spink, W. W., and Keefer, C. S.: Renal and Dermatologic Complications of Gonococcus Infections, New England M. Monthly 217: 241 (Aug.) 1937.

37. Jones, T. R.: Unusual Case of Hyperkeratosis Blennorrhagica, Brit. M. J. 1: 153 (Jan. 26) 1929.

38. Feldman, Samuel: Keratoderma Blennorrhagicum, Arch. Dermat. & Syph. 27: 889 (May) 1935.

39. Silver, Henry, in discussion on Feldman.³⁸
40. Cole, H. N., and Driver, J. R.: Keratoderma Blennorrhagica, Arch. Dermat. & Syph. 19: 1025 (June) 1929.

has been reported by Roark,⁴¹ who questions the possibility of a contaminant. The demonstration of gonococci in blood smears by Hodara³⁵ is unique and has not been duplicated by other investigators. Although Löhe and Rosenfeld⁴² attach great significance to the gonococcus fixation test, which they believe is regularly positive, as a rule it is of indefinite value and may be negative even with extensive involvement of both skin and viscera.

HISTOLOGY

The histology has been completely discussed by Keim³ and modified by Gans,⁴³ Simpson,² Haase¹⁸ and Rostenberg and Silver.⁶ Briefly, the fundamental changes are epidermal vesiculation with intracellular and intercellular edema. There is a subsequent leukocytic reaction, followed by pustulation with the rapid formation of a dry lamellar parakeratotic scale surmounted by a crust. This crust is often a prominent feature. Because of the predominance of the exudative process in some cases, Rostenberg considered the appellation "dermatitis rupioides arthropathica" a more appropriate name. Haase¹⁸ considers parakeratosis the principal epithelial change. In the prickle cell layer there is a moderate degree of acanthosis with elongation of the rete pegs. In the papillary layer there are edema and an accompanying infiltration of lymphocytes, polymorphonuclear leukocytes, a few eosinophils and plasma cells.

PROGNOSIS AND TREATMENT

The ultimate fate of patients afflicted with this syndrome is variable. An abortive type has been mentioned by Sherman, Blumenthal and Heidenreich,⁴⁴ designated as balanitis sicca circinata, in which the genitalia alone are involved. This type makes an early recovery. The severe generalized form may persist for many months or years, frequently resulting in death from septicemia or some intervening infection.

Modern treatment has improved the prognosis and favorably affected the duration of the disease. Local treatment is of little value. Ointments of resorcinol, salicylic acid and sulfur may be of benefit in their effect on the individual lesions. Autogenous vaccines have been found helpful by Scholtz.¹⁴ Stock vaccines have not been of much value. Drainage of obscure foci in the prostate and seminal vesiclectomy, orthopedic care of the inflamed joints and general supportive management of the patient are indicated. Sherman, Blumenthal and Heidenreich³² think that treatment of the primary focus is of most importance and that local treatment of the cutaneous and arthritic condition is of only secondary value. Infusions, transfusions and a high caloric diet with insulin and an adequate vitamin intake are helpful. Nonspecific protein therapy, copper, arsenic and ferruginous tonics should be given as necessary. Sulfanilamide and sulfarsphenamine have been administered but with indeterminate and inconsistent results. Willmott⁴⁵ had good results using a 1 per cent solution of mercurochrome intravenously.

The most effective therapeutic procedure is the induction of artificial fever by various means. It should constitute the nucleus around which all treatment is

planned. Favorable response to this method has been reported by Willmott,⁴⁶ Cornbleet,⁴⁶ Epstein⁴⁷ and Epstein and Chambers.⁴⁸ Intravenous injections of typhoid-paratyphoid vaccine have not been attended by very consistent results. Epstein and Chambers report rapid improvement following the induction of a temperature in excess of 104 F. by the blanket method. All visible signs of the disease disappeared within a week and the arthritis greatly improved. Early cessation of fever therapy may be followed by a relapse if the primary focus of infection has not been eradicated. This method is valuable when patients are so toxic and debilitated that they cannot successfully withstand surgical intervention. In addition to improvement in the visible lesions and joints there is a rapid favorable response, both mental and physical, such as cannot be obtained by other means.

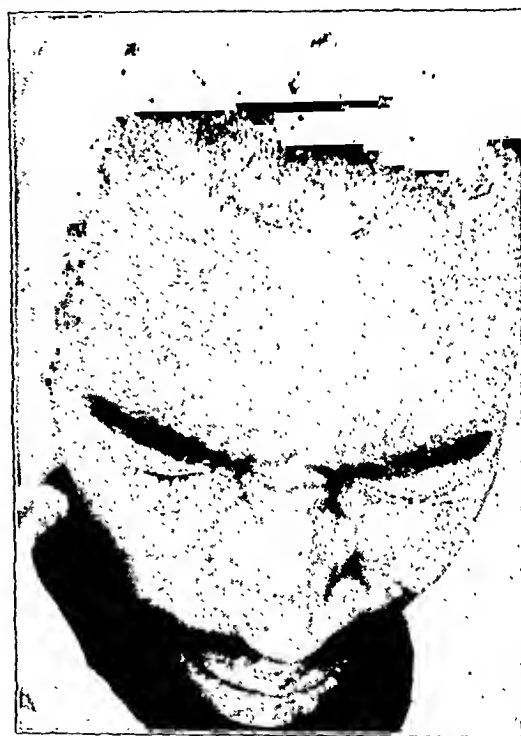


Fig. 3 (case 2).—Showing lesions of scalp.

REPORT OF CASES

CASE 1.—History.—J. R., a white man, aged 22, was admitted to Bellevue Hospital in July 1937. His previous history was essentially irrelevant. He had gonorrheal urethritis of only four weeks' duration, for which he had had irrigations with a solution of potassium permanganate. Approximately two weeks before admission pain and swelling developed in both knees. Simultaneously there appeared crusted lesions on the soles and penis.

Physical Examination.—The patient had acute gonorrheal urethritis, prostatitis and arthritis involving both knee joints. The latter were red, swollen, tender and flexed at an angle of approximately 160 degrees. There was great limitation of motion, both active and passive, occasioned by the intense pain. The temperature was 102 F. and the pulse rate 100.

On the skin there were three groups of lesions, one on the soles, one on the penis and a third on the tongue. Those

41. Roark, B. H.: *Blennorrhagic Keratosis*, J. A. M. A. 59:2039 (Dec. 7) 1912.

42. Löhe, H., and Rosenfeld, H.: *Klinische und physikalisch-chemische Untersuchungen über die Hyperkeratosenbildung bei Gonorrhoe und bei Psoriasis pustulosa arthropathica*, Dermat. Ztschr. 55:355, 1929.

43. Gans, Oscar: *Histologie der Hautkrankheiten*, Berlin, Julius Springer, 1925, vol. 1, p. 348.

44. Blumenthal, E., and Sherman, W. L.: *Penile Blennorrhagic Keratoderma with Abortive Course*, Am. J. Syph., Gonorr. & Ven. Dis. 22:176 (March) 1938. Sherman, Blumenthal and Heidenreich.³²

45. Willmott, C. B.: "Keratodermie blennorrhagique" (Vidal), Arch. Dermat. & Syph. 13:17 (Jan.) 1926.

46. Cornbleet, Theodore, in discussion on Ebert and Slepian.⁷

47. Epstein, Ervin: *Hyperpyrexia in the Treatment of Keratoderma Blennorrhagicum*, Am. J. Syph., Gonorr. & Ven. Dis. 21:148 (March) 1937.

48. Epstein, Ervin, and Chambers, S. O.: *Keratosis Blennorrhagica with Corneal Lesions*, Arch. Dermat. & Syph. 26:1044 (Nov.) 1937.

on the soles were more or less confined to the anterior part and heel. They consisted of sharply defined, elevated dirty yellow conical keratomas with a dusky red erythematous halo. They varied in size and in one area had coalesced to form a coin sized patch. Some of the younger lesions were shiny and waxy, suggesting vesiculation. However, puncture of several of these lesions yielded no fluid. On the glans penis were three discrete crusted pea sized lesions. Grouped about the corona glandis and foreskin were several superficial irregularly shaped brownish erosions, the site of previous lesions. On the dorsum of the tongue were three pea sized painless well demarcated flat papules surrounded by a narrow zone of erythema. There was generalized adenopathy.

Dark field examination of the tongue and penile lesions was negative for *Spirochaeta pallida*. A urethral smear showed a few polymorphonuclear leukocytes with a sparse number of gram-negative intracellular diplococci. A blood culture showed no growth. A trichophytin intracutaneous test and a fixation test for gonorrhea were negative.

Treatment.—Ten cc. of azosulfamide was administered intramuscularly daily for sixteen doses with no improvement. Two days after the discontinuance of the medication the patient was placed in the inductotherm and the temperature of his body raised to 106 F. for a period of three and one-fourth hours. The following day his condition was greatly improved. The swelling in his knees had visibly receded and motion in the involved joints was very much increased. One week later the same treatment was administered for three hours. By this time the keratomas had entirely disappeared. Another treatment a week later of one and one-half hours' duration was followed by complete recovery.

CASE 2.—History.—C. G., a Negro, was admitted to Bellevue Hospital in January 1939. He had had several attacks of gonorrheal urethritis during the preceding three years. He had always been a heavy drinker. About the end of November some pain developed in the left ankle with associated redness and edema. Within a few days the left knee, right ankle, right knee and left shoulder were similarly affected, in that order.

Examination.—On admission he was moribund. His weight had decreased from 160 to 105 pounds (from 73 to 48 Kg.). There was extreme wasting of the muscles, especially of the thighs and legs. He suffered excruciating pains in both upper and lower extremities, with complete loss of active motion. All large joints of both extremities were red, swollen and tender. There were moderate limitation of motion and slight swelling and tenderness of the left shoulder joint. Both seminal vesicles were tender and distended, and the prostate was enlarged and boggy.

The cutaneous lesions were generalized but more profuse on the lower extremities. There were two distinct varieties, keratotic papules and irregularly shaped, well defined plaques. The former, which have been previously described in detail, were confined to his hands and feet. Some of them were situated beneath the free border of the nails, which were in some instances elevated from the nail bed and distorted. Irregularly distributed over the back of his feet, hands, legs, forearms, genitals, groins and abdomen were well defined keratotic plaques varying from 3 to 10 cm. in diameter. These were roughly conical and composed of laminated crusts, brownish yellow with a hard irregular surface. The frontal region of the scalp was more or less covered by an imbricated scale the layers of which were cemented together by a dried serosanguineous secretion. This extended beyond the margin of the hair onto the forehead. It was firmly adherent to the underlying skin and on removal left a smooth, superficial, dusky red, dry eroded surface.

Smears from the urethra were positive for gonococci. Examination of the blood on admission revealed erythrocytes 3,800,000, hemoglobin 75 per cent, leukocytes 7,600, polymorphonuclears 64 per cent, lymphocytes 32 per cent, mononuclears 4 per cent, antifibrinogen seven minutes, hemolytic streptococcus agglutination negative, hemolytic streptococcus precipitins (C) plus-minus, coagulation time four minutes, bleeding time seven minutes, Wassermann reaction negative, gonococcus fixation test negative, blood culture (ascitic fluid) negative, blood chlo-

rides 429 mg., blood sugar 89 mg., blood nonprotein nitrogen 32 mg., icterus index 4, van den Bergh test negative.

Treatment.—For one week after admission sulfanilamide was administered in a dosage of 1 Gm. four times daily. In consideration of his profound prostration he was given pills of iron carbonate, viosterol, synthetic vitamin B₁, B₂ and nicotinic acid, 0.1 Gm. five times daily. In addition he received liver extract intramuscularly every other day and five blood transfusions. Under these procedures he rallied and showed considerable clinical improvement, although his erythrocyte count fell to 2,900,000 and his hemoglobin level to 50 per cent. The sulfanilamide had been discontinued but because of a recurrence of pain was resumed, with little benefit.

Beginning on March 3 and continuing at forty-eight hour intervals he received eleven treatments with the inductotherm. At each session his temperature was maintained at 104 F. for a period of from three to four hours. All lesions on his skin promptly disappeared and the arthritis rapidly subsided.

The improvement in his general physical and mental condition was even more striking. In five weeks he gained 40 pounds (18 Kg.) and his blood count returned to normal.

CONCLUSIONS

1. Keratosis blennorrhagica is a distinct entity characterized by polyarthritis and cutaneous keratoses in the presence of a gonorrheal infection.

2. Fever therapy by means of the inductotherm offers a method of treatment superior to any which has been previously suggested.

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GALLSTONES IN CHILDREN

REPORT OF A CASE DIAGNOSED BY ROENTGEN EXAMINATION AND CONFIRMED AT OPERATION

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AND

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Only a few years ago the occurrence of gallbladder disease in childhood was looked on as a pathologic curiosity. Not until Potter¹ in 1928 collected 224 cases from the literature, which he reviewed when reporting four cases from his own practice, did the medical profession begin to realize that many of the vague "stomach aches" of children were really manifestations of biliary disease. It is highly probable that this series of collected cases represented the merest fraction of the actual number of children afflicted with some disturbance of the biliary tract, for so firmly fixed was the idea that only adults are subject to gallbladder disease that the possibility was seldom or never considered. Many of the reported cases were accidental discoveries, found when operating for something else (usually acute appendicitis). Worse still, many were found at autopsy.

Ten years later, Potter² again took up the subject of gallbladder disease in childhood and, by instances from his own records and further explorations in the literature, was able to raise the total number of reported cases to 432. While admitting that this shows not so much a greater incidence of the condition in early life as more prompt recognition of a relatively common observation in pediatric practice, Potter is "firmly convinced that, at the present time, gallbladder surgery

1. Potter, A. H.: *Gallbladder Disease in Young Subjects*, Surg., Gynec. & Obst., 46: 795 (June) 1928.
2. Potter, A. H.: *Biliary Disease in Young Subjects*, Surg., Gynec. & Obst., 66: 604 (March) 1938.

in children is several years in arrears of the symptoms. This is emphasized by the fact that a large majority of cases of gallbladder disease in the third and fourth decades give histories of symptoms dating back to the first or second decade."

Our attention was first drawn to the subject of gallbladder disease in childhood by a patient admitted to the Mountinside Hospital, through the pediatric clinic. Reviewing the literature, it is astonishing to find how many cases are on record, yet how seldom the diagnosis is made in the regular routine of hospital admission. Besides Potter's two papers, which cover aspects of the subject completely, there are a number of other isolated case reports of cholelithiasis in children in the literature.³

ETIOLOGY

When biliary disease manifests itself in infants, one naturally thinks of congenital obstruction as a probable etiologic factor. This aspect of the subject has been well presented by Ladd, who studied forty-five cases at the Children's Hospital, Boston. The biliary system, like other parts of the digestive and excretory tract, is subject to various congenital anomalies, several of which may cause obstruction to the ducts. There may be atresia of the hepatic ducts or of the common duct, and the extrahepatic ducts may be missing entirely. The gallbladder may be merely represented by a small cyst having no connection with the common duct or, again, there may be no common or hepatic ducts. There may be stenosis of the common duct and complete obstruction may take place because it is easily plugged with inspissated bile. Or partial obstruction may be due to congenital narrowing of the common duct. Very serious malformations are likely to be manifested by

deep jaundice or other clinical evidences before the infant attains many weeks of age. The majority do not survive, although a few have been completely relieved by operation.

Such a relatively unimportant deformity as congenital narrowing of a duct may, however, give no decided evidence of its presence until the child attains some age, yet the damage to the biliary system is steadily progressing and the symptoms which it continually gives are ignored or misinterpreted. Common duct obstruction has been successfully relieved by anastomosis of the gallbladder to the duodenum (cholecystoduodenostomy), but it is evident that only surgical treatment will enable these patients to outlive infancy.

In older children the etiologic factor in gallbladder disease is more likely to be an acute infection—one of the exanthems, influenza or typhoid fever. Typhoid was formerly incriminated in all types of gallbladder disease, but improvements in sanitary precautions have reduced the incidence of this infection almost to the vanishing point in many communities, yet the number of cases of biliary disease shows no decrease. Scarlet

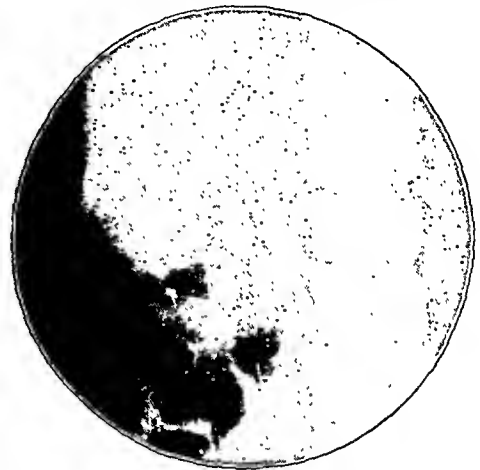


Fig. 1.—Appearance of gallbladder.

fever is still prevalent enough to account for many instances, and infections of the upper respiratory tract, with influenza, contribute many more. In Lowenburg and Mitchell's series, five children had an associated infection of the respiratory tract. Focal infection and metastasis from a chronically diseased appendix are likewise cited by some writers as prominent etiologic factors in the cholecystitis of childhood. Mention should also be made of the possibility of *Lamblia* infection; as far back as 1928 Smithies found this parasite when doing biliary drainage, and its pathogenicity, when lodged in the biliary tract, has since been recognized by numbers of surgeons operating on the gallbladder and ducts. Twelve of the young patients of Zelditch and his co-workers harbored the parasite, which was recovered in the returns from biliary drainage.

SYMPTOMS AND DIAGNOSIS

In making the diagnosis of gallbladder disease, the physician's task is somewhat complicated if the patient is a child. This is because even at the present time comparatively little is said or written about the prevalence of biliary tract disease in children. Even when a child's complaints are promptly heeded and not placated with some home remedy for a "stomach ache," the possibility of gallbladder disease will not be considered. It is noticeable that many of the cases of

3. These include:

- Wendel, A. V.: A Contribution to the Symptomatology and Diagnosis of Cholelithiasis in Infancy and Childhood, *M. Rec.* 54:41, 1898.
Kellogg, E. L.: Gallbladder Disease in Childhood, *Ann. Surg.* 77: 587 (May) 1923.
Zambalos, Andreas: Nephrolithiasis und Cholelithiasis im Jugendalter, *Röntgenpraxis* 9:416 (June) 1937.
Berman, J. K.: Acute Cholecystitis with a Gallstone in a Child Eleven Years of Age, *J. Pediat.* 5:47 (July) 1934.
Hamilton, H. B.; Rich, C. O., and Bisgard, J. D.: Cholecystitis and Cholelithiasis of Childhood, *J. A. M. A.* 103:829 (Sept. 15) 1934.
Skemp, A. A.: Gallstones in Infancy, *ibid.* 96:108 (Jan. 10) 1931.
Montgomery, A. H.: Diseases of the Gallbladder in Children, *Am. J. Dis. Child.* 44:372 (Aug.) 1932.
Judd, E. S.: Certain Differences Presented by Diseases of the Biliary Tract, *S. Clin. North America* 5:643 (June) 1925.
Brown, W. S.: Cholelithiasis in a Child of 3 Years and 8 Months, *M. J. Australia* 2:53 (July 13) 1935.
Farr, C. E.: Cholecystitis and Cholelithiasis in Children, *Arch. Pediat.* 39:574 (Sept.) 1922.
Eisendrath, D. N.: Gallstones in Infancy and Childhood, *Ann. Surg.* 66:557 (Nov.) 1917.
Reid, M. R., and Montgomery, J. C.: Acute Cholecystitis in Children as a Complication of Typhoid Fever, *Bull. Johns Hopkins Hosp.* 31:7 (Jan.) 1920.
Snyder, C. C.: Cholecystitis and Cholelithiasis in Young Children, *J. A. M. A.* 85:31 (July 4) 1925.
Zelditch, Wurmman, Jolkver and Guinditch: Des cholestites chez les enfants, *Rev. franc. de pediat.* 12:351, 1936.
Smithies, Frank: Present-Day Treatment of Intestinal Protozoiasis, *J. A. M. A.* 91:152 (July 21) 1928.
Vergelin, M. E., and Rosenfeld, Adolf: Tuberculosis pulmonary litiasis biliar concomitantes en una niña de seis años de edad, *Semana med.* 1:1307 (June 9) 1938.
Ladd, W. E.: Congenital Obstructions of the Bile Ducts, *Ann. Surg.* 102:742 (Oct.) 1935.
Lowenburg, Harry, Jr., and Mitchell, A. G.: Cholecystitis in Childhood, *J. Pediat.* 12:203 (Feb.) 1938.
Guilleminet, Pouzet, F., and Truchet: Biliary Lithiasis in a Child, *Lyon med.* 158:429 (Oct. 18) 1936.
Beals, J. A.: Cholecystitis and Cholelithiasis in Children, *South. M. J.* 21:666 (Aug.) 1928.
McClendon, S. J.: Gallstones in Children: Case Diagnosed by Roentgen Examination, *Am. J. Dis. Child.* 45:584 (March) 1933.
Sobel, I. P.: Cholecystitis and Cholelithiasis in Childhood, *Arch. Pediat.* 55:669 (Nov.) 1938.
Amberg, Samuel, and Walters, Waltman: Infantile Jaundice: Report of Two Unusual Cases in Which Cholecystectomy Was Employed, *Proc. Staff Meet., Mayo Clin.* 13:769 (Dec. 7) 1938.
Penberthy, G. C., and Benson, C. D.: Surgery of the Biliary Tract in Infants and Children, *Am. J. Surg.* 40:232 (April) 1938.
Swing, A. T., and Bullock, J. G. M.: Acute Cholecystitis Complicating Typhoid Fever, *Am. J. Dis. Child.* 55:521 (March) 1938.
Donne, V. J.: Acute Cholecystitis Occurring in an Infant, *Brit. J. Surg.* 25:914 (April) 1938.

childhood cholecystitis were discovered only when the abdomen had been opened to extirpate a supposedly inflamed appendix. Unlike our patient, the majority of these little patients are brought not to pediatricians but to general surgeons, on whom the task of recognizing the true nature of the abdominal condition usually devolves.

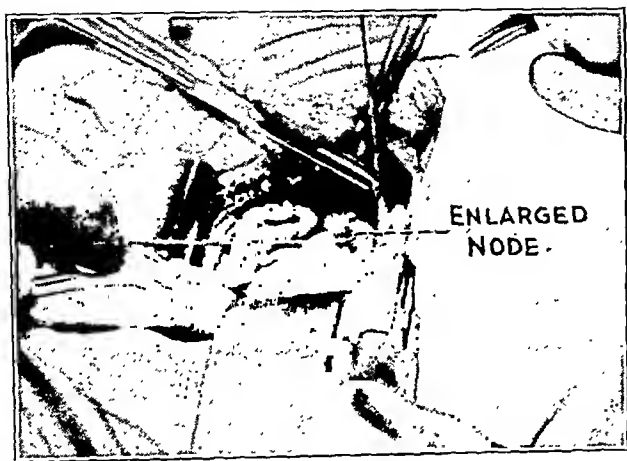


Fig. 2.—Appearance at operation.

The chief diagnostic method is roentgenography. Only three cases have been reported in which the diagnosis was first made by x-rays and later confirmed by operation: one by Beals, one by Montgomery and one by McClendon. Cholecystography is usually well tolerated by children and should be regularly employed with all obscure abdominal conditions, particularly if the child shows even slight jaundice. The routine use of this diagnostic aid would undoubtedly uncover many more cases of gallbladder disease in the early years of life and in this way contribute to better health among the adult population.

The symptoms displayed by children suffering from cholecystitis or cholelithiasis are so similar to those due to appendicitis that confusion between the two is very common. Moreover, it is not unusual for the two conditions to exist simultaneously. Therefore, when operating for appendicitis in a young patient, investigation of the condition of the biliary canal should not be omitted even when the appendical features are quite sufficient for all the symptoms.

Several authors have recently stressed the importance of examination of the bile and duodenal intubation in the establishment of a diagnosis of gallbladder disturbance, either suspected or positively recognized. Flakes of mucus, often loaded with leukocytes, were seen by Zelditch and his assistants, and when there was a tendency toward cholelithiasis, cholesterol was demonstrated in the bile.

TREATMENT

In all cases surgical therapy is the only means of relief. Some of the earlier writers on gallbladder ailments in childhood tended to stress the medical side of the picture. But most of those who have recently made contributions to the literature on this subject condemn any undue delay in undertaking surgical exploration.

REPORT OF CASE

History.—A 10 year old Negro girl was first seen in the pediatric clinic with the chief complaint of loss of appetite and weakness, accompanied by jaundice, light colored stools and dark urine of two weeks' duration.

The history, given by the child's mother, was of recurrent attacks of jaundice since the age of 4, sometimes with intervals of no longer than four months. Associated with the jaundice was pain, felt across the middle of the back and on both sides. But there never had been abdominal pain typical of gallstone colic. There had been rheumatic fever at 4 years and, following this, feverish intervals when the child complained of pain in her knees. There had been frequent attacks of otitis media. At about 8 years of age she had been sent to Glen Gardner Tuberculosis Sanatorium with a diagnosis of pulmonary tuberculosis, where she remained thirteen months and was then discharged as having the disease in arrested condition. She was said to have suffered several attacks of jaundice while in the sanatorium, but apparently no investigation of its cause was ever attempted.

Physical Examination.—The patient was well developed and well nourished but looked chronically ill. The conjunctivas were markedly jaundiced. There was a perforation of the right ear drum. The tonsils had been incompletely removed so that some small tags were still in evidence in a throat which was slightly injected. The lungs were clear to percussion and auscultation. The heart was slightly enlarged to the left and there was a loud systolic murmur best heard at the apex and transmitted to the axilla. The liver and spleen were not palpable, and the only positive abdominal indication was slight tenderness on deep pressure in the right upper quadrant.

The patient was admitted to the pediatric ward for complete investigation. The table gives the results of laboratory examinations.

Roentgen Examination.—The plain x-ray film showed a large number of small calcareous stones, mostly in the gallbladder, although four or five were in the cystic and hepatic ducts. Results of study by the Graham dye method were identical.

Laboratory Data

Test	Result
Icteric index	25
Van den Bergh (both direct and indirect)	Negative
Blood phosphorus	4.7 mg.
Blood phosphatase	14 units
Blood cholesterol	176 units
Stool examination:	
Urobilin	present
Bilirubin	absent
Blood count:	
Hemoglobin	55%
Red blood cells	3,130,000
White blood cells	12,900
Polymorphonuclears	56%
Small lymphocytes	44%

Operation.—Because of the low blood count, it was deemed unwise to operate immediately. Two blood transfusions were given and at the end of two weeks the blood had improved



Fig. 3.—The operative specimen.

sufficiently to permit surgical intervention. On April 8, 1939, under gas-oxygen-ether anesthesia, the abdomen was opened by an incision extending from the costal margin to the level of the umbilicus, 1 cm. to the right of the midline. The gallbladder, when exposed, was found to be greatly enlarged and filled with small stones. One stone was found in the ampulla and another at the junction of the cystic and common ducts. The gallbladder was freed and dissected from the liver, the cystic artery identified, clamped, tied and cut; the common duct

was dilated with Lahey dilators as far as the duodenum and the gallbladder was then removed. The wound was closed in the usual manner.

A feature of much interest was a group of glands about the common duct which were enlarged and very firm. One of these glands lay in such a position that it pressed on the common duct, almost completely occluding its lumen. The stone already mentioned lay directly behind the point of compression. The gland was removed and sent to the laboratory for examination.

Pathologic Report.—The gallbladder was thickened and infiltrated with fibrous connective tissue. There were dilated capillaries and focal collections of chronic inflammatory cells. The gland which had been removed showed no tuberculous infection.

Postoperative Course.—At her discharge from the hospital, after an uneventful convalescence, the child's icteric index was 11.

COMMENT

The striking feature of this case is the finding of nontuberculous glands in close relation to the diseased gallbladder. The history of arrested pulmonary tuberculosis would at once suggest their origin, but the laboratory examination did not bear this out. The fact that a stone had formed directly behind the point of compression of the common duct strongly indicates the important role of stasis of bile in the formation of stones.

Examination of the case reports of gallbladder disease in children brought to light two which bear some resemblance to that just related. Patient 4 of Zelditch and his co-workers was sent to the hospital with a diagnosis of tuberculous peritonitis. There had been abdominal pain for more than a month, but no details of a tuberculous history are given. The child was treated with biliary drainage only. Vergelin and Rosenfeld's patient was a girl of 6 years who had active pulmonary tuberculosis at the time the gallbladder symptoms were first manifest. At operation a number of the mesenteric glands were noted as enlarged and palpable as hard nodules along the course of the ducts. No mention is made of these enlarged glands exerting pressure on any of the ducts, but this would seem to be a logical result of caseation of the mesenteric glands, if one accepts the theory of the bile stasis origin of gallstones.

CONCLUSIONS

As nearly 450 cases of gallbladder disease in children under 15 years of age are now on record, disorders of the biliary tract in children can no longer be regarded as rare.

2. Typhoid, once regarded as a common cause of cholecystitis, has now become an unimportant source of morbidity, thanks to prophylaxis and improved sanitation. But the incidence of cholecystitis and cholelithiasis in children has in no wise diminished, so one must look elsewhere for the chief etiologic factors.

3. From the observations at operation in the case here reported, it is probable that bile stasis, induced by compression of the common duct by an enlarged and indurated node, was the basic cause of the cholelithiasis.

4. The diagnosis of biliary tract disease during the early years of life may be reached by the same methods now employed for adults and is in no way more complicated or difficult than with adults. Because the symptoms so closely simulate those of appendicitis, differential diagnosis is often missed. Therefore the pediatrician and the surgeon should be on the alert to recognize gallbladder disease unerringly and to operate promptly when surgical treatment is indicated.

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EXPERIENCES IN HEPARIN ADMINISTRATION

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AND

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DETROIT

The control of the coagulability of the blood in vivo by the use of heparin in its present highly purified form constitutes one of the significant achievements of medical science during the past decade. The product available today is 500 times more potent than the original crude heparin described by Howell and Holt¹ in 1918 and is 100 times more potent than the material used clinically by Mason² in the Henry Ford Hospital in 1924. In that year Mason reported the experience with heparin as the anticoagulant in blood transfusions in thirty-three human subjects. He used 100 mg. of heparin in 500 cc. of blood. Reactions were frequent, the incidence for three lots being 33 per cent, 100 per cent and 28 per cent respectively. About one-half hour after the transfusions, symptoms developed which varied in intensity from mild headache and chilly sensations to intense headache, backache, vomiting, chills and temperatures as high as 104.4 F.

In animal experiments, Mason³ noted that heparin was efficacious in preventing experimental thrombosis and suggested that it should be applicable clinically. No attempt was made at the general heparinization of a human subject because of the untoward reactions resulting from the injection of enough heparin to render only half a liter of blood incoagulable.

In 1929 Howell⁴ reported that he had purified the material so much that 1 mg. would prevent the clotting of 100 cc. of blood. It had been used in ten transfusions with two chills resulting. The problem of further purification was undertaken by workers in Toronto in 1929. At the suggestion of Dr. C. H. Best, Charles and Scott,⁵ of the Connaught Laboratories of the University of Toronto, did successful research on heparin and produced the present highly purified nontoxic material which we are using. A number of investigators have done valuable independent research on the subject. For a summary of the contributions of Schmitz and Fischer, Jorpes and Bergstrom, Astrup and Jensen and other workers, the reader is referred to the recent comprehensive review by Mason.⁶

After animal experimentation, Murray, Best and their co-workers used heparin on human subjects. Their experiences have been presented in a number of papers.⁷ In Murray's latest paper he⁸ summarizes his extensive

From the Division of General Surgery of the Henry Ford Hospital.
1. Howell, W. H., and Holt, E.: Two New Factors in Blood Coagulation—Heparin and Pro-Antithrombin, *Am. J. Physiol.* 47: 328-341 (Dec.) 1918.

2. Mason, E. C.: A Note on the Use of Heparin Blood Transfusion, *J. Lab. & Clin. Med.* 10: 203-206 (Dec.) 1924.

3. Mason, E. C.: Blood Coagulation: The Production and Prevention of Experimental Thrombosis and Pulmonary Embolism, *Surg., Gynec. & Obst.* 39: 421-428 (Oct.) 1924.

4. Howell, W. H.: The Purification of Heparin and Its Chemical and Physiological Reactions, *Bull. Johns Hopkins Hosp.* 42: 199-206 (April) 1928.

5. Charles, A. F., and Scott, D. A.: Studies on Heparin: IV. Observations on the Chemistry of Heparin, *Biochem. J.* 30: 1927-1933 (Oct.) 1936.

6. Mason, M. F.: Heparin: A Review of Its History, Chemistry, Physiology and Clinical Applications, *Surgery* 5: 451-467 (March), 618-637 (April) 1939.

7. Murray, D. W. G.; Jaques, L. B.; Perrett, T. S., and Best, C. H.: Heparin and the Thrombosis of Veins Following Injury, *Surgery* 2: 163-187 (Aug.) 1937. Murray, D. W. G., and Best, C. H.: Heparin and Thrombosis: The Present Situation, *J. A. M. A.* 110: 118-119 (Jan.) 1938.

8. Murray, D. W. G.: Heparin in Surgical Treatment of Blood Vessels, *Arch. Surg.* 40: 307-325 (Feb.) 1940.

clinical experience with heparin. A group of 440 patients with various operative procedures had been given prophylactic heparinization, and no pulmonary embolism had occurred. Twenty-nine patients with pulmonary embolism had been treated; all of these survived, and with one possible exception there was no further embolism. Eighty-one patients with phlebitis were treated, and it was felt that the clinical course of the treated group was better than that of a control group; no emboli occurred. Six patients with mesenteric thrombosis were given heparin after operation to prevent extension of the process; four recovered and two died of preexisting peritonitis. Heparin was used in eight cases of splenectomy to prevent thrombosis of the portal vein. Embolectomy for peripheral embolism was done twelve times, the artery remaining patent in each instance; two end to end arterial sutures were done (brachial and common carotid arteries) and in one case a venous graft was used to bridge the gap in a popliteal artery left after the removal of an aneurysm. A secondary operation was necessary in the latter case but the result was excellent.

In a preliminary report Kelson and White⁹ showed encouraging results in the treatment of seven patients

popliteal artery, thrombosis of the posterior tibial artery, and phlebitis. The clinical data in the eleven cases are summarized in the accompanying table.

The material consists of 10,000 units of heparin dissolved in 10 cc. of saline solution. (This unit is five times larger than the original Howell unit, which inhibits the clotting of 1 cc. of cat's blood.) We proceeded to give this material to our first patient (W. P., chart 1) according to the simple directions given by Murray and Best in January 1938.⁷

The heparin solution is added to an intravenous saline drip. Usually 1,000 units of heparin, i. e. 10 mg., is added to each 100 cc. of saline solution. The saline and heparin mixture is allowed to run into the vein at such a rate that the clotting time of the patient's blood is maintained at about fifteen minutes, i. e. two or three times the normal value. . . . The rate of saline solution may be twenty-five drops per minute, but this varies greatly from case to case. . . . The clotting time may be determined by one of the simple methods, such as the breaking off of bits of a capillary tube which has been filled with blood.

Chart 1 shows graphically what we were able to do with the clotting time in the first case. Injection of the solution was begun at the rate of 2,000 units an

Summary of Eleven Cases Treated with Heparin by Continuous Intravenous Drip

No.	Patient	Age	Sex	Weight	Operation or Diagnosis	Indication for Heparin	Evidence of Pulmonary Embolism				Days of Heparin	Approximate Units per Hour Necessary	Total Number 10 Cc. Vials	Chills
							Typical History	Physical Signs	Hemoptysis	X-Ray Evidence				
1	W. P.	25	♂	191	Hernia	Embolism	+	+	+	+	6	2,000	20	3
2	B. S.	49	♀	157	Hernia, phlebitis	Embolism	+	+	+	+	15	1,000	40	4
3	N. V.	24	♂	154	Fractures	Embolism	+	+	+	?	10	2,000	40	2
4	S. K.	37	♂	180	Perforated appendix	Embolism	+	+	+	+	9	2,000	40	1
5	E. S.	45	♀	161	Ovarian cyst	Embolism	+	+	0	0	5	1,000	11	1
6	M. S.	52	♂	152	Hernia	Embolism	+	+	0	?	6	1,500	20	1
7	G. L.	62	♂	117	Popliteal embolus	Embolectomy	—	—	—	—	5	2,000	25	0
8	A. R.	45	♂	174	Hernia	Embolism	+	?	0	+	9	1,000	17	0
9	F. M.	42	♂	210	Peritonitis	Phlebitis	—	—	—	—	6	2,000	18	0
10	J. M.	35	♂	152	Tabetic dementia paralytica	Thrombosis of artery	—	—	—	—	2	2,000	11	0
11	W. K.	69	♂	187	Prostatectomy	Embolism	+	+	?	+	8	2,000	35	0

who had bacterial endocarditis with a combination of sulfapyridine and heparin.

In the face of the impressive report of Murray, we present our results with heparin administration in a small series of eleven cases. We believe that these patients presented definite if not urgent indications for heparinization; the material was not used from the standpoint of research but was used for the treatment of the individual patients and was paid for by the patients as such. Even in this small series we have had a reasonable opportunity to study the potency of the material in vivo and its possible toxic effects. Several details of the technic of administration have been learned by experience, and a few complications have arisen which are worth recording.

Since April 1939, every patient with postoperative embolism which was not immediately fatal has received general heparinization as prophylaxis against further embolism. We have had eight such patients. Seven of these did not have recurrence of embolism; one had a second infarction five days after the first course of heparin was finished, and a second course was given, with recovery resulting. Three other types of condition have been treated: embolectomy for embolus in the

hour. Two hours after the treatment was begun the patient had a violent chill. In spite of this reaction the treatment was continued. The temperature rose to 103 F. and on two subsequent days there were less severe chills. The rate of injection was varied in an attempt to stabilize the clotting time at the optimum level, and it will be seen that approximately 2,000 units an hour was necessary to elevate the clotting time to fifteen minutes or above. In contrast to this the results in our eighth case are shown in chart 2. The clotting time in this case was easily maintained above the optimum level by the administration of 1,000 units an hour. No chill or other subjective symptoms occurred in this case, indicating that the toxic fractions in the material used in our earlier cases had been removed.

Our third case (N. V., chart 3) is reported in detail because it illustrates a complication that may be expected if one attempts to maintain an optimum clotting time in all patients by giving 1,000 units in 100 cc. of saline solution. Since some patients require 2,000 units an hour, this would result in the administration of 4,800 cc. of saline solution daily. In the presence of healthy kidneys and heart this will be tolerated for a period, but after this edema appears.

A white man aged 24 was admitted July 13, 1939, suffering from fractures of eight ribs on the left side and both scapulas. July 30 he had a sharp pain in the right side of the chest

9. Kelson, S. R., and White, P. E.: A New Method of Treatment of Subacute Bacterial Endocarditis Using Sulfapyridine and Heparin in Combination: A Preliminary Report. J. A. M. A. 113:1700-1702 (Nov.) 1939.

posteriorly and coughed up blood; roentgenologic examination showed probable infarction. Heparinization was begun August 1; he immediately had a chill with rise of temperature to 104 F. August 2 he was comfortable; August 3 a slight expiratory wheeze was noted, and August 4 there was slight increase in respiratory difficulty. The next day generalized edema appeared and the patient was mentally confused. It was evident that these symptoms were due wholly to excessive parenteral intake of physiologic solution of sodium chloride. Therefore the concentration of heparin was doubled. August 6, studies of the blood chemistry showed the chlorides to be 430 mg. (whole blood as sodium chloride), sodium 338 mg., carbon dioxide combining power 77.6 volumes per cent, plasma albumin 2.68 Gm. and globulin 1.65 Gm. The alkalosis and the marked dilution of the blood as indicated by the low plasma proteins values were notable. The edema did not disappear rapidly, and August 7 a 5 per cent solution of dextrose was substituted for the saline solution. This resulted in marked diuresis and rapid disappearance of the edema. A mild saphenous phlebitis resulted from the use of dextrose as the infusion medium, but the patient had no further embolic manifestations and was discharged on September 2.

When a person with cardiac insufficiency is treated with heparin, the matter of the injection of saline solution into the blood stream is of the greatest importance. This may explain why it was necessary for Kelson and White to discontinue prematurely the treatment in four of their seven cases of endocarditis. Our seventh case

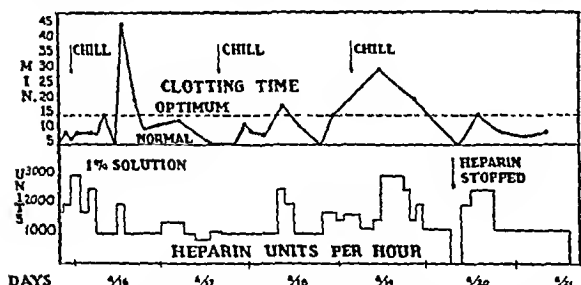


Chart 1 (W. P.; herniotomy; embolism ninth day).—Heparin chart of the first patient in the series, showing that 2,000 units an hour was necessary to maintain the clotting time at fifteen minutes or above (capillary tube method).

(G. L. in the table) illustrates a satisfactory result from peripheral embolectomy in spite of the fact that it was necessary to stop the heparin early because the patient would not tolerate the amount of saline solution necessary to give the heparin in a concentration of 4,000 units per hundred cubic centimeters.

A white man aged 62 had been treated for arteriosclerotic heart disease with auricular fibrillation since 1937. He had had seven admissions for congestive failure. Oct. 10, 1939, he was admitted on the service of Dr. F. J. Smith for treatment of myocardial failure. November 4 there was sudden loss of vision of the left eye, and ophthalmologic examination revealed central retinal thrombosis. At 8 a. m. November 6 he had sudden severe pain in the left popliteal space. Examination of the leg showed it to be blanched and cold below the knee. There was no pulse in the posterior tibial artery, but a faint pulse could be felt in the upper part of the popliteal artery. The pain was excruciating and was not controlled with morphine. The diagnosis of embolus to the bifurcation of the popliteal artery was made. General heparinization was begun at once, so that when the patient was brought to the operating room the clotting time was twice normal. Operation (R. D. McC.) was begun at 11 a. m. under general anesthesia. The popliteal artery was exposed and the embolus palpated and removed after incision of the artery. The sclerotic artery was sutured with arterial silk, and when the proximal serrefine clamp was removed there

was immediate pulsation in the posterior tibial and dorsalis pedis arteries. Heparinization was maintained throughout the operation.

When the patient reacted from the anesthetic, his gratitude for the relief of the agonizing pain of ischemia was notable. It was planned to give heparin for a week, but on November 11, the fifth day, Cheyne-Stokes respirations and signs of increas-

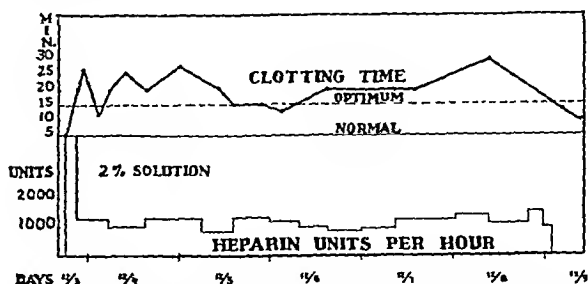


Chart 2 (A. R.; herniotomy; embolism fifth day).—Heparin chart of eighth patient in the series, whose clotting time was easily maintained at the optimum level by giving 1,000 units an hour. Note the absence of chills.

ing myocardial failure developed, and it was deemed imperative to discontinue all intravenous fluids. There was slight oozing of the wound, which was easily controlled with pressure dressings. The circulation of the foot remained excellent. The patient had marked diuresis from a mercurial diuretic, a hydrothorax was tapped November 20, and he was discharged December 12.

Our eleventh case (W. K.) is reported in detail because of the complications encountered and the marked change in the method of administration of the second course of heparin:

A white man aged 69 had a suprapubic cystotomy Feb. 15, 1940, and on February 26 the second stage of the prostatectomy was done. Three days later there developed pain and a friction rub in the left chest. Injection of heparin in 2 per cent solution was begun. On March 3 auricular fibrillation was noted, and it was felt that some degree of cardiac decompensation existed. He was digitalized, and the heparin was continued in 4 per cent solution. On March 8 he was drowsy and there was slight pitting edema of the sacrum and left ankle. It was felt advisable to discontinue the heparin and allow the patient to get up. Activity had progressed to the point where he was walking in the hall on March 13. That night sudden pain developed in the right axilla. It was evident that a second infarction had occurred, but the cardiorespiratory consultant advised against the administration of any considerable quantity of fluids intravenously on account of the previous experience. On March 14 there was a loud leathery friction rub over the right axilla. On March 15 it was decided to try the intermittent injection of the undiluted heparin solution. A previous report¹⁰ had shown that three injections over a period of six hours gave a maximum elevation of clotting time of fifty-four minutes.

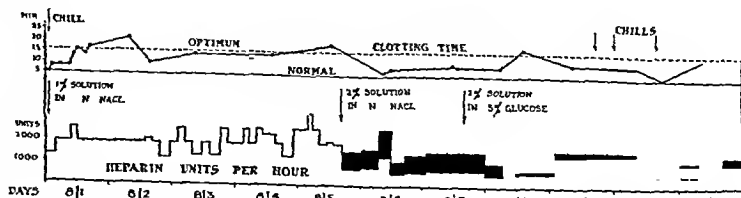


Chart 3 (N. V.; fracture of scapulas and nine ribs on left; embolism seventeenth day).—Heparin chart. The patient had edema on the fifth day from excessive saline intake. The black area indicates the reduction of fluid obtained by doubling the concentration of heparin.

Chart 5 shows the effect on the clotting time of 104 injections over a period of twelve days. Injections were made every two hours for three days, and every three hours thereafter. Clotting times were determined just before an injection and ten

10. Luccia, S. P., and Aggeler, P. M.: Heparin and the Blood Coagulation Mechanism, *Proc. Soc. Exper. Biol. & Med.* 40: 41-45 (Jan.) 1939.

minutes after, to ascertain the minimum and approximate maximum range. This schedule was possible only because the patient was exceedingly cooperative and did not object to the numerous injections. It will be noted that the clotting time was kept fairly well above fifteen minutes for twelve days by the use of slightly over forty-one 10 cc. vials by the intermittent method, while thirty-eight vials were used in eight

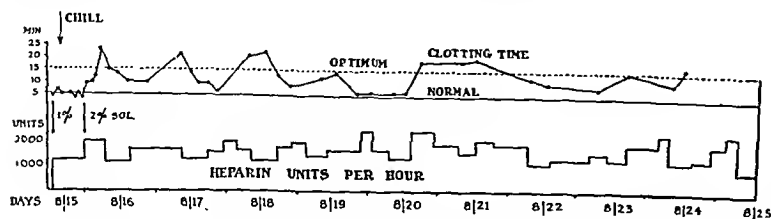


Chart 4 (S. K.; perforated appendix; embolism twelfth day).—Heparin chart.

days when the material was given by continuous drip. On March 22 he was given a light general massage, which was repeated on subsequent days. He was allowed up on March 27, but the heparin was not stopped until March 27, when he was staying up most of the day and walking in the hall. There was no further evidence of embolism and at no time was there abnormal bleeding from the prostatic bed.

We have treated only one case of phlebitis with heparin:

A man of 42 had signs of peritonitis, but he improved on conservative treatment. After one month in the hospital phlebitis of the right leg developed, with severe pain. He was heparinized for six days. During this period there was no progression of the phlebitis and he was more comfortable, although there was no effect on the fever. Several days after the heparin was discontinued, phlebitis appeared in the left leg.

Another case (J. M. in the table) will be reported in detail, because it is the first of its type to be reported. It represents a favorable result from a combination of treatment with passive vascular exercise and heparin in a case of occlusion of the posterior tibial artery:

A white man aged 35 had a positive Wassermann reaction July 22, 1939, and a paretic gold curve December 16, Feb. 10, 1940, he had five hours of fever therapy in the hyperthermia, the treatment being over at 2:30 p. m. At 4 p. m. he complained of cramping in both legs. This was relieved somewhat by the injection of calcium gluconate and he went home. The pain in the left leg persisted and he was readmitted to the hospital during the night. Several hours later he was seen by a surgical consultant, who confirmed the evidence of arterial occlusion. The first, second and third toes of the left foot were cold and mottled. Coldness and insensitivity to pinprick extended for 2 inches up on the foot on both dorsal and plantar aspects. There was no pulsation in the posterior tibial artery as compared with a good pulsation on the right. The dorsalis pedis pulse was questionable on both sides. It was felt that the occlusion was probably the result of thrombosis on account of the presence of syphilis, the absence of a detectable heart lesion and the history of recent hyperthermia treatment. Passive vascular exercise and heparinization were suggested and carried out. After the extremity had been in the boot for ten minutes there was noticeable improvement in the color of two of the smaller toes, although no posterior tibial pulse was palpable. Heparin was begun and the clotting time was elevated to fifteen minutes. The next morning, after eighteen hours of the combination treatment, the posterior tibial pulse was present, although it was weaker than that of the other side. All of the foot was pink except for a small area about 2 mm. wide at the lateral border of the great toe. Passive vascular exercise was discontinued after one day and heparin was continued for another day. There was no further evidence of circulatory deficiency in the foot. The physical therapy was probably the most important factor in the good result, with heparinization a valuable adjunct.

POTENCY AND TOXICITY

The potency of heparin obtained from different laboratories may vary markedly. This fact, together with the fact that there is no official standard of potency, causes confusion when results are compared. The unit referred to in this paper is that of the Toronto workers, namely the activity of 0.01 mg. of the crystalline material. Dr. Best¹¹ believes that the potency of this product is perfectly constant. There is, however, considerable variation in the amounts required for different patients.

In general, the potency *in vivo* has not been as great as we had expected after reading the previous reports. As indicated in the table, seven patients required approximately 2,000 units an hour to keep the clotting time above fifteen minutes, one required 1,500 units, and three required 1,000 units. The two females in the series were in the last group. The weight of the patients was not significant. Chills and fever, the only toxic effect observed, occurred in the earlier cases, but no such effect was noted in the last five consecutive cases. The price of heparin has come down appreciably since we began using it. The daily cost may not exceed \$10 or \$15, which is no more than the cost of special nurses.

DETAILS OF TREATMENT

It is convenient to give the heparin in 2 per cent¹² solution although, if there is indication to restrict fluids, more concentrated solutions may be used. In one case there was no ill effect from repeated injections of the undiluted solution. When the continuous intravenous drip is used, the vein selected may be in the leg or arm. It is more convenient for the patient for the needle to be in the leg, thus leaving both arms free for eating, reading and personal care. In most instances we have inserted a medium size intravenous needle into the vein

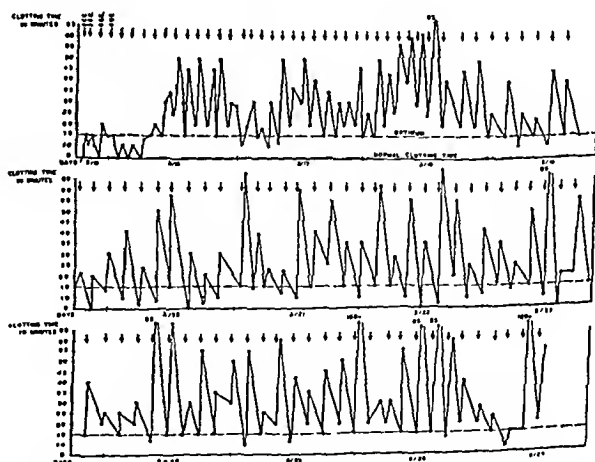


Chart 5 (W. K.).—Effect on the clotting time of repeated intravenous injections of 4 cc. of undiluted heparin solution at intervals of two and three hours over a period of twelve days.

and taped it firmly in place, without the necessity of "cutting down." The leg is not splinted; on the contrary, after a day or two the patient is encouraged to move all extremities at will. In an uncooperative

11. Best, C. H.: Personal communication to the authors.
12. The term "2 per cent" refers to the dilution of the "Solution of Heparin" supplied by the Connaught Laboratories. Since this solution consists of 100 mg. of crystals in 10 cc. of saline (1 per cent) solution, the concentration of crystalline heparin in our "2 per cent solution" is actually only 0.02 per cent.

patient, such as the man with tabetic dementia paralytica in our series, it is essential to fasten a cannula in the vein by ligature. When the patient is sufficiently recovered from his operation or infarction to be ambulatory, the needle may be transferred to a vein in the forearm, after which he may sit in a chair or walk about the room with the intravenous injection running. How long the patient should be ambulatory before the heparin is discontinued is not known; we have felt that two days should be a reasonable period.

SUMMARY

1. Eight patients with postoperative pulmonary embolism have been treated by general heparinization. All recovered, but one required a second course of heparin when a second infarction occurred five days after the first course was ended.

2. Heparin was used with gratifying results in one case of embolectomy of the popliteal artery and one case of probable thrombosis of the posterior tibial artery.

3. The purified heparin that is available at the present time is nontoxic when given intravenously. It is economically feasible to use heparin in the treatment of selected cases.

4. Considerable variation in the amount of heparin necessary to elevate the clotting time to an arbitrary optimum level in different patients has been observed.

THE INTERPRETATION OF VISIBLE PULSATION IN THE RETINAL ARTERIES

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Our purpose in this communication is to discuss an error that persists in ophthalmic literature concerning the interpretation of pulsation of the retinal arteries.

Two years after Helmholtz¹ announced his discovery of the ophthalmoscope in 1851, Van Trigt² and Coccius³ observed a venous pulsation on the papilla. The following year (1854) Jaeger⁴ described an arterial pulse in the retinal arteries and von Graefe⁵ noted retinal arterial pulsation in glaucoma. Since then, many observations have been published on pulsation of the retinal blood vessels. The opinion that pulsation of the retinal veins is physiologic, but that pulsation of the retinal arteries is always pathologic, became established in ophthalmic literature and persists to date. When it became possible to observe the fundus of the eye more minutely as the result of improvements in the ophthalmoscope, a few observers expressed doubt that a pulse in the retinal arteries is always pathologic. One of the conclusions of Ballantyne⁶ in his comprehensive article, published in 1913, on "Pulsation of the Retinal Arteries" was that pulsation of the retinal arteries is

sometimes physiologic. He found an arterial pulse of some kind in 36 per cent of 100 presumably healthy outdoor patients at an eye infirmary and concluded "it is likely that 36 per cent is an under, rather than an over, estimate of the frequency of the pulse."

A survey of eight textbooks on ophthalmology in English, published or revised since 1933, reveals that in five of these books the erroneous statement persists that pulsation of the retinal arteries is always pathologic. No mention was made of the subject of pulsation of the retinal arteries in one book. One author avoided the issue. In only one of the eight textbooks is it clearly stated that pulsation of the retinal arteries is a normal occurrence.

Recent evidence of the persistence of this fallacy is afforded by the 1939 edition of a small textbook of the diseases of the eye which enjoys probably the widest distribution of any ophthalmic textbook in America. Writing of pulsation in the retinal blood vessels, the author of this book states that "pulsation in the veins is often seen in health, but arterial pulsation is always pathological."

The arteries of the retina are not exempt from manifestations of the arterial pulse. The retinal arteries normally function under a mean intra-ocular pressure of 20 mm. of mercury (Schiotz). This intra-ocular pressure does not prevent an arterial pulse but renders it more readily visible. This fact was noted by von Graefe in 1854, when he recorded an accentuation of the arterial pulse, when the intra-ocular tension is increased digitally, or in glaucoma.

Skilful and careful observation will reveal a pulse in at least one branch of the retinal artery in as many as 80 per cent of cases that are suitable for ophthalmoscopic study. Such minute details as movements of the arteries will not be seen in restless, uncooperative patients or in eyes with lazy refractive media or a high degree of simple or compound refractive error.

It is not difficult to observe movement of the retinal arteries with the aid of an electric ophthalmoscope or even with a reflecting ophthalmoscope, employing the direct method of ophthalmoscopy. In many instances a retinal arterial pulse can be seen in the blood vessels near the optic disk through an undilated pupil. The arteries can be examined more minutely and over a larger area of the fundus if the pupil is dilated. As an aid to the beginner in ophthalmoscopy, digital pressure on the anesthetized eye, or through an eyelid, is helpful in that it accentuates the amplitude of the arterial pulse. A pulse wave of good amplitude can usually be seen in the eyes of a person suffering from aortic valvular disease.

To avoid error due to inexperience and difficulties, such as confusing retinal light reflexes, we recommend acceptance of only those ophthalmoscopic details seen by two or more observers, which has been our practice for several years.

Pulsation of a retinal artery has been observed on the disk, in the retina near the papilla and in its visible peripheral branches. The most favorable place to see pulsation is at a bend in the course of a tortuous artery. At such a location a decided lateral movement of the artery synchronous, or nearly so, with the radial pulse is usually visible. Close observation of the movement of a retinal artery in the region of a bend or curve reveals that the movement of the vessel is toward the convexity of the curve. At an S curve this movement is particularly noticeable because it travels in opposite directions. A pulsating forward and lateral movement

From the Institute of Pathology and Department of Surgery, Ophthalmological Service, Western Reserve University School of Medicine, and Youngstown Hospital.

1. Helmholtz, Hermann: Beschreibung eines Augen-Spiegels zur Untersuchung der Netzhaut im lebenden Auge, Berlin, A. Förstner, 1851.

2. Van Trigt, A. C.: The Ophthalmoscope, Nederl. Lancet 2: 417, 1853.

3. Coccius, Ernestus: Ueber die Anwendung des Augen-Spiegels, Leipzig, I. Müller, 1853.

4. Jaeger, Eduard: Ueber die sichtliche Blutbewegung im menschlichen Auge, Wien, med. Wehnschr. 4: 36, 51 and 69, 1854.

5. von Graefe, Albrecht: Vorläufige Notiz über das Wesen des Glaukoms, Arch. f. Ophth. (pt. 1) 1: 371, 1854.

6. Ballantyne, A. J.: Pulsation of the Retinal Arteries, Ophthalmoscope 11: 271, 338 and 460, 1913.

of an artery synchronous with the pulse is frequently observable at a bifurcation. The most common evidence of an arterial pulse wave is a rapid lateral movement and slower recoil of a vessel. There is, however, also an expansile movement of the arteries which manifests itself by an alternate widening and narrowing of the arterial light reflex. This expansile pulse is usually the only type of pulsation visible in a straight artery. In healthy persons the locomotor type of pulsation is more easily seen than the expansile type. The rarest type of pulsation is the capillary pulse. It is manifested by an alternate flushing and paling of the papilla and may be seen in persons with aortic insufficiency.

In considering the various types of pulsation seen in the retinal arteries, it should be remembered that they are manifestations of an expansile and elongating effect, produced in the relatively unsupported retinal arteries by the passage of the systolic pulse wave. While the cause of the pulsation is constant, the effect varies in straight or tortuous portions of the arteries.

It is not within the scope of this paper to discuss the pathologic conditions in which the normal pulse of the retinal arteries may be altered. Suffice it to state that certain general and local diseases alter the character of the retinal arterial pulse.

SUMMARY

A visible pulse in the retinal arteries is a common physiologic phenomenon. This varies with general and local disturbances of circulation and of the eye. Statements to the effect that pulsation of the retinal arteries is always pathologic should be corrected in textbooks of ophthalmology.

THE TREATMENT OF DELAYED MENSTRUATION WITH PROSTIGMINE

A THERAPEUTIC TEST FOR EARLY PREGNANCY

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AND

OSCAR HECHTER, B.S.

CHICAGO

In a recent study¹ it was found that the various component phenomena of estrus in the rat may be classified in two categories: (1) the specific proliferative effects of estrogen and (2) those effects which are secondary to hyperemia. The latter effects can be reproduced by nonspecific hyperemic agents such as yohimbine. However, when they result from the action of estrogen they are due to the acetylcholine-liberating properties of this hormone, as demonstrated by Reynolds.²

In view of the large proportion of the estrous phenomenon in animals which is dependent on hyperemia, it seemed likely that the role of hyperemia was probably even more important in the periodic menstrual bleeding of the human female. Considering the mechanism of this hyperemia, it would presumably also be

under the influence of at least the parasympathetic nervous system. This relationship of the nervous system to uterine hyperemia might readily account for the well known influence of mental, emotional and physical strain on the menstrual history of women. It

TABLE 1.—The Lack of Effect of Prostigmine on Pregnancy in Rats

Number of micrograms of prostigmine per 100 Gm. of body weight injected subcutaneously, on each of the first three days of pregnancy	Approximate Dose Used in Human Beings					Approximate Minimum Lethal Dose	
	2.5	5.0	10.0	15.0	20.0	30.0	40.0
Number of impregnated rats injected at each dosage level.....	1	1	3	1	4	5	5
Number of rats which had normal gestation periods and deliveries and bore healthy litters.....	1	1	3	1	3	3	0
Number of rats killed by the dosage used	0	0	0	0	1	2	5

thus appeared possible that cases of delayed menstruation, now generally ascribed to temporary endocrine dysfunctions, might in fact occur despite normal hormone secretion and be due to abnormally decreased vascular responsiveness. It therefore seemed worth while to attempt to treat such cases by pharmacologic rather than by endocrine means.

METHODS AND RESULTS

The mechanism of the hyperemic action of estrogen suggested the use of acetylcholine. But, since this seemed not without danger, it was decided to potentiate the naturally occurring acetylcholine in the uterine endometrium by inhibiting the cholinesterase with prostigmine methylsulfate, a synthetic physostigmine-like substance which is commercially available.³

Since we proposed to use prostigmine to precipitate the menstrual flow of women in whom this function was significantly delayed, we considered the probability that some women would present themselves in early pregnancy. Although this possibility could be ruled out by history and physical examination in most cases, it was necessary to be certain that the treatment would not disturb an early pregnancy if the diagnosis should be missed. For this purpose a series of freshly impregnated rats was used. The animals were injected on the first three successive days of pregnancy with amounts of prostigmine which varied from doses equivalent to those we wished to use on patients to large doses within the lethal range. The results are summarized in table 1. It may be seen that prostigmine did not terminate the pregnancy in a single instance, even when relatively huge amounts of the drug were given. Those animals which did not succumb to the immediate general effects of the lethal dosage went on to normal gestation periods and deliveries and bore healthy litters.

With the assurance gained from our animal experiments, we proceeded to test the effects of prostigmine on women in early pregnancy, as judged by history, physical examination and a positive Friedman (modification of the Aschheim-Zondek) test. Table 2 shows that the pregnancies were not affected. No untoward or unpleasant, subjective or objective effects of the drug were observed.

Table 3 summarizes the results of prostigmine treatment in cases of delayed menstruation in which early

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Dr. A. S. Tulskey gave the authors permission to cite some of the cases used in this work.

1. Hechter, Oscar; Lev, Maurice, and Soskin, Samuel: The Relation of Hyperemia to the Action of Estrin, *Endocrinology* 26: 73-79 (Jan.) 1940.

2. Reynolds, S. R. M.: Acetylcholine Content of Uteri Before and After Administration of Estrin to Ovariectomized Rabbits, *J. Physiol.* 95: 258-268 (March 14) 1939.

3. Prostigmin methylsulfate, supplied by Hoffmann-La Roche, Inc.

pregnancy was ruled out by the history and physical examination, supplemented by the Friedman test when necessary. Prostigmine invariably precipitated the menstrual flow. The flow started as soon as half an hour after the injection in one instance. The longest interval between the last injection and the beginning of the flow was seventy-eight hours. The average time which elapsed was twenty-eight hours. In some instances the amount of flow was somewhat heavier than that usually experienced by the patient, though not alarmingly so. With one exception, all the patients reported normal menstruation at their next regular period.

COMMENT

We are aware of the possibility that some of our patients with delayed menstruation might have started to menstruate even if no treatment had been given or if a placebo had been employed. But the invariable nature of our results and the fact that the flow started after an average interval of only twenty-eight hours can leave no doubt that prostigmine precipitates menstruation when it would otherwise not occur. Indeed, from our experience it is possible to assure the patient treated with prostigmine that she will soon menstruate unless she is pregnant. If she fails to menstruate, pregnancy may be diagnosed with the same degree of accuracy as is possible with the Friedman test.

It must be emphasized that this procedure applies only to delayed menstruation in women who have had a normal menstrual history up to the last period. It

be due to lack of vascular response rather than to endocrine dysfunction.

2. On the basis of the physiologic mechanism of estrous hyperemia, women suffering from delayed menstruation were treated with prostigmine. Menstrual flow invariably resulted.

TABLE 3.—Initiation of Menstrual Flow by Prostigmine in Cases of Menstrual Delay (Nonpregnant)

Case	Age, Years	Grav. idity	Men- strual Delay, Days	Physical Manifestations*	Fried- man Test	Prostig- mine Dosage†	Result‡
1. K. S.	19	0	3	....	.....	1 × 1 cc.	+ (4 hrs.)
2. K. S.	19	0	5	....	.....	1 × 2 cc.	+ (6 hrs.)
3. K. St.	28	0	5	....	.....	1 × 2 cc.	+ (24 hrs.)
4. L. W.	22	0	7	....	.....	1 × 2 cc.	+ (11 hrs.)
5. K. St.	28	0	8	....	.....	1 × 2 cc.	+ (10 hrs.)
6. M. B.	29	0	8	....	.....	1 × 2 cc.	+ (12 hrs.)
7. M. S.	27	0	9	....	.....	3 × 2 cc.	+ (24 hrs.)
8. K. L.	25	I	9	I	.....	1 × 2 cc.	+ (½ hr.)
9. M. M.	22	0	10	....	.....	3 × 1 cc.	+ (10 hrs.)
10. K. M.	32	II	10	....	.....	1 × 1 cc.	+ (24 hrs.)
11. K. H.	24	0	10	....	.....	3 × 2 cc.	+ (2 hrs.)
12. K. B.	32	0	12	....	.....	3 × 2 cc.	+ (48 hrs.)
13. H. B.	20	0	12	....	.....	3 × 2 cc.	+ (48 hrs.)
14. L. H.	26	0	14	....	.....	1 × 2 cc.	+ (36 hrs.)
15. A. D.	28	IV	14	....	Neg.	2 × 2 cc.	+ (48 hrs.)
16. M. H.	38	I	14	....	Neg.	2 × 2 cc.	+ (10 hrs.)
17. M. S.	19	0	14	....	Neg.	3 × 2 cc.	+ (36 hrs.)
18. P. S.	30	I	14	s c	.....	2 × 2 cc.	+ (24 hrs.)
19. T. B.	23	I	15	e	.....	1 × 2 cc.	+ (24 hrs.)
20. L. B.	23	I	16	....	.....	1 × 2 cc.	+ (15 hrs.)
21. L. W.	21	0	16	....	.....	3 × 2 cc.	+ (50 hrs.)
22. V. H.	24	0	16	....	Neg.	3 × 2 cc.	+ (46 hrs.)
23. E. Mc.	24	0	18	....	Neg.	3 × 2 cc.	+ (78 hrs.)
24. K. W.	24	0	18	s	Neg.	3 × 2 cc.	+ (3 hrs.)
25. G. H.	24	I	34	....	Neg.	2 × 2 cc.	+ (72 hrs.)
25. L. K.	24	0	35	I	.....	3 × 1 cc.	+ (72 hrs.)

* s = slight softening of cervix; e = slight enlargement of uterus; I = infantile uterus.

† 1 × 1 cc. indicates that the patient was injected intramuscularly with 1 cc. of 1:2,000 solution of prostigmine methylsulfate on a single occasion.

‡ The plus sign indicates the initiation of menstrual flow. The figure that follows the sign in each case is the approximate time after the last injection of prostigmine at which the flow started.

3. Preliminary work on animals and on human beings conclusively demonstrated that prostigmine does not initiate menstrual flow when the delay is due to early pregnancy.

4. Prostigmine has no effect on early or prolonged amenorrhea due to endocrine dysfunction or to local organic changes.

5. The constancy of the results in menstrual delay and the lack of effect on pregnancy make it possible to use prostigmine as a combined treatment for menstrual delay and a therapeutic test for pregnancy.

Twenty-Ninth Street and Ellis Avenue.

March Foot.—March foot is a linear fracture through the middle of the shaft of a metatarsal bone appearing without the history of a severe injury. It may occur in the second or third metatarsal bones. The condition derived its name from the fact that it was first noted in army recruits following prolonged marching. Clinically it is characterized by swelling of the soft tissue in the dorsal area with pain and tenderness over the involved bone. The condition is usually associated with metatarsus latus and pes valgoplanus and is sometimes seen secondary to the radical operation for hallux valgus. It is believed to be caused by a mechanical insufficiency in the anterior part of the foot which results in an increased load on the metatarsal bone. In addition, it may be the result of a strain and may occur in civilians as well as in military recruits.—Hauser, Emil D. W.: Diseases of the Foot, Philadelphia, W. B. Saunders Company, 1939.

TABLE 2.—The Lack of Effect of Prostigmine on Pregnancy in Women

Case	Age, Years	Grav. idity	Men- strual Delay, Days	Physical Manifestations*	Fried- man Test	Prostigmine Dosage†	Result
1. K. B.	23	0	11	S e	+	3 × 2 cc.	0
2. E. S.	31	0	11	S e	+	3 × 2 cc.	0
3. B. J.	26	0	12	S	+	2 × 2 cc.	0
4. L. A.	21	0	14	S E	+	3 × 2 cc.	0
5. M. M.	33	II	14	....	+	4 × 2 cc.	0
6. P. R.	23	II	14	S E	+	3 × 2 cc.	0
7. K. Z.	38	II	14	S E	+	2 × 2 cc.	0
8. M. B.	29	0	14	S E	+	3 × 2 cc.	0
9. L. E.	28	0	14	S c	+	3 × 2 cc.	0
10. M. S.	39	I	14	S	+	3 × 1 cc.	0
11. S. M.	33	I	15	S	+	3 × 2 cc.	0
12. V. H.	24	0	16	S	+	3 × 2 cc.	0
13. A. M.	34	0	16	S	+	3 × 2 cc.	0
14. D. P.	26	0	17	S e	+	3 × 2 cc.	0
15. L. F.	42	0	19	....	+	3 × 2 cc.	0
16. J. K.	24	0	21	S	+	3 × 1 cc.	0
17. R. J.	26	0	21	S e	+	3 × 2 cc.	0
18. O. S.	24	I	24	S E	+	3 × 2 cc.	0
19. E. I.	22	II	26	....	+	3 × 2 cc.	0
20. M. N.	26	0	27	....	+	3 × 2 cc.	0
21. K. L.	26	I	28	S E	+	3 × 2 cc.	0
22. R. W.	26	0	32	S E	+	2 × 2 cc.	0
23. K. S.	18	0	42	S E	+	3 × 2 cc.	0

* S = softening of cervix; E = enlargement of uterus; s = slight softening of cervix; e = slight enlargement of uterus.

† 3 × 2 cc. indicates that the patient was injected intramuscularly, with 2 cc. of 1:2,000 solution of prostigmine methylsulfate on three successive mornings.

does not apply either to early or to prolonged amenorrhea due to endocrine dysfunction or to local organic changes. For the sake of completeness we have administered prostigmine in a considerable number of cases of the latter types, without the slightest result.

SUMMARY AND CONCLUSIONS

1. The important role of hyperemia in the estrous phenomenon suggested that delayed menstruation might

THE HYPOTHALAMUS

PACEMAKER OF METABOLIC AND
EMOTIONAL RHYTHM

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"One gains the impression that, consistently with its primitive place in the evolution of the brain, the hypothalamus contains the mechanisms of the more primitive psychic and emotional reactions. It plays a part in conditioning moods of elation and depression, and their expression in laughter or weeping. It is concerned with reactions of defence, aggression, suspicion, fear, anger, sex. It ignores refinements of decency and convention, if isolated from the control of its better educated instructor the frontal cortex, which seems to exercise an inhibitory influence on its cruder yet vitally important functions. The exact clinical picture evoked depends no doubt upon the exact pattern of the lesion."

This sketch of some hypothalamic functions was written by a neurologic surgeon, Norman Dott. He continued his statement by saying that we possess little knowledge of the detailed anatomic arrangement of hypothalamic mechanism. However, this idea is so much understated as to be hardly true.

As we have seen during the present meeting, the mamillary areas are concerned with sleep, the anterior part of the hypothalamus with the antidiuretic principles and, despite some differences of opinion among physiologists, the local habitation of the instruments controlling carbohydrate metabolism and even sexual activity has been named. It seems, however, that more emphasis has been placed on position and process than on the rhythmic character of process. And I would advance the notion that not only vegetative functions are controlled in this primitive area but also their innate systole and diastole. The hypothalamus is a neuroglandular instrument in command of vital rhythm. During the two days of this meeting we have become acquainted with the placement of processes situated in an area one three hundredth part the size of the total brain. Writing this before I hear the sapience of my colleagues, I cannot know whether they will speak of the metronomic function which one can see exerted by this antique middle place. The timing of the organism is placed here, influenced somewhat by its intimate connections with newer and also with older and still more primitive sources of power and feeling. To speak, however, of the signs and symptoms produced by various forms of disease affecting this place would be in a sense only to make a kaleidoscope tortured into pattern of the functions and dysfunctions which have been already described by both physiologists and clinicians, and would be over-repetitious as well.

FUNCTION OF HYPOTHALAMIC AREA

The supreme mystery lies in commonplace phenomena so exquisitely maintained that they excite almost no attention. The regularity of the rhythm of breathing, the constancy of pulse rate, the exact maintenance of body temperature, the beautiful balance of the intake and output of fluid, the cycle of sleep, the integrity of body weight and the imposed periodicity

of the menstrual rhythm—all these ebbs and flows are instrumented primarily through the area which we have been considering. And this integrating mechanism of the diffusely working sympathetic, and the discretely working parasympathetic, systems are linked—and perhaps activated—by hormonal messengers, chiefly from the hypophysis, but stimulated and controlled through the subthalamus to the thalamus and thence to the prefrontal cortex. It is not surely possible that the last arrived chieftain can seriously influence the primitive forces innate in a structure as ancient as the hypothalamus. The rhythms of each individual are innate and are built into the organism. They may seem, superficially considered, to be under the influence of the conscious ego. But so do the Atlantic rollers seem to be made by the wind and the weather. These, however, only change the appearance of the top of the roller. The great wave itself, propagating its energy for thousands of miles across the sea, is really made by another force of which the observer cannot be conscious, namely the rotation of the earth.

While much attention has been devoted to the more easily observed metabolic functions of the hypothalamic area, it would seem proper in now closing our session to ask that more attention be given to rhythmic fluctuations in mood and behavior, and of emotional expression, consequent on stimulation or depression of these areas in a manner as yet not understood. One must remember how Foerster produced the symptoms of acute mania when he set in motion a tumor, pressing from below the walls of the third ventricle. And how in another case, when he wiped blood clot from the surface of the third ventricle walls, manic excitement immediately was produced. In fact, Ranson goes so far as to say that "the fact is no longer doubtful that a manic condition can be produced by mechanical stimulation of the oral part of the hypothalamus in man." And Ranson goes on to say that "the manic symptoms cannot be produced from any other spot, such as the walls of the lateral ventricle or the head of the caudate nucleus." On the other hand, interference with the collicular region and the posterior part of the hypothalamus is followed by unconsciousness and sleep.

We have elected at this session to confine our attention to one small area out of the entire neural mechanism. Such specialization makes for accuracy in one direction. It is, however, a thoroughly artificial approach and inadmissible as an approach to the understanding of the total integration of these structures and functions.

DISEASE OF THE HYPOTHALAMUS

Many observers, as Penfield, believe that "in the thalamus and on the hypothalamus lies the highest representation of the vegetative nervous system." We know that, by the subthalamus, the hypothalamus is linked structurally and functionally with the corpora striata; with the hypophysis by fibers originating from hypothalamic elements, and that the anterior nuclei of the thalamus are linked to the gyri cinguli above and, below, to the mamillary nuclei by the bundle of Vicq d'Azyr; so we must appreciate that hypothalamic disease will paint pictures many of which are not susceptible of being artificially thrust on the hypothalamus itself for explanation. Further, in an area where sympathetic and parasympathetic functions are both represented in their enormous variety we discover stimulating clinical patterns of dysfunction not ordinarily associated together in our minds. For instance,

we readily accept amenorrhea as part of the picture of abnormal obesity in young women. We somehow see immediately that the same lesion has produced both of these two symptoms, but we do not so readily see that the fluctuations in body weight, the sleeplessness and the amenorrhea of a young woman with cyclothemia are caused by the same lesion that has produced her recurrent manic behavior and mood. Indeed we constantly are asking ourselves "Did the suppression of her menses cause her mental breakdown?" instead of perceiving that the large probability is that the break in the rhythm of her menses has been produced by the same abnormality in structures and in function that has caused the break in rhythm of her emotional life. Mutual antagonisms in functional activity emerge from lesions in this place. For instance it has been shown that solution of posterior pituitary opposes the action of insulin, and it would seem that pitressin cannot control diabetes insipidus in the presence of sleep. And high blood sugar associated sometimes with acromegaly can hardly be influenced at all by insulin and diet. And why do depressed cyclothermic patients experience depressional depths almost inversely as the square of the distance from sleep? We try to make them sleep but, when they do, for some hours afterward they're always the worse for it. Ordinarily they have a diurnal rhythm, much worse on waking in the morning; many of them state that they feel fog lifting from their spirits and minds in the late afternoon and often they are entirely normal throughout the evening. But such people, should they sleep in the afternoon, do not experience their usual betterment in the evening. A like paradoxical antagonism is seen in the production of narcolepsy and cataplexy by a positive emotion like laughter and surprise producing the negation of sudden morbid sleep or muscular tonelessness and falling. Again may one stress how much the hypothalamus is concerned not only with emotional expression (which may be mainly thalamic) but with mood? And it is no accident that postencephalitic children are hypomanic.

CAUSATION

Not all hypothalamic syndromes are due to acquired disease, such as injury, infection or the formation of tumor. One of my patients suffering from severe diabetes insipidus had an interesting family history. Her mother and aunt and her mother's mother have all been extraordinarily obese. The grandmother weighed 230 pounds (104 Kg.) and also her father, of 6 feet 4 inches (193 cm.), 368 pounds (167 Kg.). The other children in the family, aged 9 and 11 years, weighed respectively 128 (58 Kg.) and 118 pounds (53.5 Kg.). My patient, aged 17, three years ago weighed 165 pounds (75 Kg.); there developed severe polyuria and polydipsia and her weight dropped to 98 pounds (44.5 Kg.). Her basal rate was minus 18. There has been no evidence of neoplasm and I believe that she suffers from a familial hypothalamic-pituitary defect. Another girl, aged 20, however, after the removal of a severely infected wisdom tooth became subject to sudden attacks of uncontrollable drowsiness, which she noticed came upon her on anger and laughing, especially during the morning hours. These attacks of sudden sleep were often replaced by attacks of her knees giving way when excited, angered, surprised or suddenly amused. The same weakness has occurred in the arms. She has a sudden sensation of intense weakness at these times but is usually able to protect herself by holding on to a table or, as she said lately,

clutching the railing that she had been leaning against when excited by a hockey game. Sometimes on laughing she experiences a sensation of darkness coming from the back to the front of the head followed by sudden falling, in which she has occasionally hurt herself. She has also periods of enforced immobilization, during which she can't lift a hand by will or move a foot or speak. These may last half an hour or an hour and sometimes in them she falls asleep for ten minutes. Emotion triggering morbid sleep put one of my patients in an impossible position when he suddenly slept with snores on kissing a girl in a taxi cab, and a patient with acromegaly always yawned in the middle of his own speeches, an involuntary reflex and no sign of grace.

ILLUSTRATIVE CASES

It would be commonplace to speak before such a body as this of clinical phenomena which have been so often viewed by us all. For instance, one of my patients at Bellevue with tumor involving the floor of the third ventricle producing polydipsia, polyuria, obesity and impotence of long duration had a psychosis indistinguishable from dementia paralytica; a child with supra-optic glioma characterized by progressive blindness and intense diabetes insipidus, which could be modified by the use of pitressin. Such symptoms have been well recognized and have been much explored already at this meeting. I have seen, however, four families, unrelated to one another, all presenting in the majority of their members clear signs of abnormal pituitary function. In these four families, instances of Froelich syndrome, gigantism, acromegaly, mild diabetes insipidus, occurred; in all four families as well there were two or more cases of manic-depressive psychosis, so that I came to relate in my mind these conditions together. However, not only is manic-depressive psychosis found in frequent association with hypophysial and hypothalamic abnormality but various behavior problems, lying, stealing, arson and temper tantrums, have occurred in young people under my observation, accompanied by functional hypothalamic "organic" signs more frequently than they do in persons physically normal. Such instances are important in the consideration of body-mind relationship.

In this regard the disturbance of vegetative function in hypothalamic encephalitis can hardly be overstated; not only have such cases been difficult to differentiate from so-called pure psychoses but some of them have furnished, by the disruption of vital rhythm, valuable data for a comprehension of neurotic and psychotic phenomena on a physical rather than on a purely emotional or psychic basis.

H. G., a man aged 21, served as a private in the United States Marines during the last war and was supposed to have disintegrated mentally following an alleged attack of influenza in London during the month after the armistice. He was placed in an excellent hospital for mental diseases for about eight months after his return home. The diagnosis was dementia praecox, at that time still the fashionable name for schizophrenia. The clinical picture seen in the spring of 1921 was sufficiently confusing; a young man of splendid physique carried his height of 6 feet 2 inches (188 cm.) with a pronounced stoop, an acquisition of his illness. Without syphilis the pupils were distinctly sluggish to light; the right side of the face flattened in its creases, and there was a fine aspic jelly-like, but definite, nystagmus on lateral conjugate deviation of the eyes to the right or left. There was pronounced tremor in the extended hands. He had lost more than 30 pounds (13.6 Kg.) since his illness; except for the absence of the abnormal reflexes, great increase in the arm, knee and ankle reflexes and involun-

tary shivering movements of the pectoral muscles, nothing more of pathologic interest could be made out in the sensorimotor system. He suffered, however, from severe nocturnal insomnia, rarely sleeping more than two hours before dawn, after which he would usually waken and again grow drowsy and perhaps sleep three or four hours before noon. Whether he slept or not, during the first part of the day he was utterly inert and exasperated by his inertia. He had the utmost difficulty in accomplishing through defective will power and indecision simple acts, such as shaving, dressing or bathing. He agonized for hours in futile efforts to write a short note or keep an important engagement during this early part of the day. In his mental attitude there was no trace of negativism; he desired passionately to do those things which he could not do at that time but which later in the day he often could do with relative ease. There was a distinct resemblance between his inability to perform acts to the completion of which he was urged by will, lacking the stronger adjuvant of emotion, and the palsy of purely voluntary movements in midbrain encephalitis of the parkinsonian type—palsies so often abolished by emotional stimulation. He complained frequently of "numb attacks" during which he felt very cold and in which he shivered and his teeth would chatter like a man with a rigor. During these attacks, even in July weather, his rectal temperature was always subnormal, on several occasions being 97 F.; and on his skin were large patches of goose flesh which covered a third of the body area at a time and which, under observation, changed their position like a breeze over still water.

In the same general period but not necessarily and indeed rarely at the same hours, he had attacks of disturbed breathing rhythm of from a quarter to half an hour's duration. During these attacks he felt as though he could not fill his lungs with air and breathed with all his accessory respiratory muscles from fifty-six to sixty-four times a minute. At other times he experienced what seemed like a spasm of the laryngeal muscles and breathed more and more stertorously and ineffectively so that the lips were cyanosed and the eyes protruded. Phenomena such as these have appeared at times in hysteria, and various physicians had considered them hysterical in this case. This explanation, however, could not account for the patient's abnormal thirst for ice water. He consumed for a period of eighteen months between fifty and sixty tumblers of water every twenty-four hours and had proportionate polyuria.

An analysis of the initial illness in December 1918, which he had always considered influenza, revealed the only symptom to have been severe headache and intense sleepiness by day and by night. Two negative features of value, however, were that he had had no feeling of fever and that he had never reported sick to a medical officer. It is highly unlikely that this could be true of any youthful patient with the influenza which was prevalent in London at the end of 1918. Furthermore, after three or four weeks sleepiness disappeared during the night time and was present only by day, a reversal of the sleep mechanism sufficiently familiar to all students of epidemic encephalitis.

The patient's symptoms during the last eight months of his illness gradually improved to almost normal, with little or no morning inertia, no difficulty with respiration and no rigors; polydipsia was reduced to an intake of only three quarts of water a day.

A boy of 14 had a similar polydipsia and polyuria, tremors in the upper extremities, excessive salivation and similar distressing paroxysmal attacks in which breathing was exceedingly rapid, labored and difficult. At these times there was great emotional distress and suffering. This boy had acute encephalitis in January 1920 with visual disturbance, diplopia, fever and excessive insomnia; this was followed for many months by apparent recovery and was gradually succeeded by a rhythmic incessant cough and stammering and thereafter by the distressing symptoms already described.

Another patient, a woman of 28, developed severe hypertrichosis of the face and arms following encephalitis. Great increase in body weight has been a fairly common sequel of that disease as it is of neoplasms interfering with the third ventricle floor. It happens that this disturbance of metabolism was seen in our series mainly in female patients. One patient within half a year gained over 150 pounds (68 Kg.).

Rhythmic movements, breathing irregularities and eccentric stations may be attributed to disturbance of the toning mechanism of muscles.

Five patients, all with an early parkinsonian syndrome, had stammering as a sequel to their illness. In one of these cases the disorder accompanied a severe relapse precipitated by a fright occurring two months after the onset of encephalitis. In the other instances stammering appeared from three months to two and a half years after the first symptoms and without any psychic shock. Three patients had rhythmic movements. An encephalitic patient had from the onset of her illness bilateral rhythmic action of the masseters, which gave a champing "subway" movement to the jaws. This was constant during the waking hours and, with her immobile facies and unwinking stare, resembled remarkably the breathing movements of a fish: perhaps a return to an earlier facial aspect!

These movements occurred about once in two or three seconds, were not under control of the will nor varied by attention or emotion and could not be inhibited by any voluntary use of the involved muscles. Their maintained rhythm distinguishes them to some extent from habit spasms, some of which, however, have a striatal origin. I think many cases of hysteria may be in mechanism a retreat by the personality from a cortical to a more primitive reflex level of motor expression and sympathetic discharge, so that hysterical episodes necessarily have the striatal and hypothalamic pattern and color imposed on them by the physiologic mechanism through which they find expression.

One patient had very irregular breathing—both in depth and in rate—accompanied by curious noises which occurred only during sleep. On the other hand, a narcoleptic with lingual dystonia and almost unintelligible speech in his sleep talks fluently and normally well. S. J., fifteen months after apparent total recovery from encephalitis, had a parkinsonian relapse, accompanied by attacks of rapid deep breathing, profuse sweating, lacrimation, salivation and venous congestion of the face. These increased in frequency and at last continued throughout the waking hours, causing intense fatigue. Emotion would initiate them, but when started they could not be stopped until their course was run—usually in a minute or two. There was never any feeling of dyspnea but a sensation that he could not possibly fill the lungs and an intense desire to fill them.

One patient had recurrent vomiting which persisted for three weeks. Several times a day, with or without food in the stomach, expulsive movements occurred; the vomiting was probably in morbid process analogous to the rhythmic movements and breathing spasms just described and also analogous to the hiccup seen in certain cases of encephalitis. Such visceral perversions, however, may be due to parasympathetic explosion. A 12 year old boy had acute anteropulsion of the trunk, so that he looked backward through his legs as Peter Pan looked at the bears. He could walk only by splinting his torso upward by his arm, held rigid on his knee. Another boy, aged 15, maintained when sitting or standing a deviation of the trunk to the left so that the upper part of the trunk was almost at right angles to the pelvis. Neither patient ever fell. At a certain point the active pull would cease, movement would end and the attitude would be maintained. This was a clinical replica of the experiments of Ecker and Brookney and Gerard in which stimulation of the posterior part of the posterior area of the third ventricle wall produced concavity of the spine to the ipsilateral side.

Limitation of parkinsonian symptoms to the upper extremities and to the face was observed twice. This leads one to the probability that individual centers in the corpora striata represent individual spinal segments.

The rich connection between the basal olfactory regions and the hypothalamus account for the almost constant appearance of intense fear referred sickeningly to the pit of the stomach in uncinate fits and even in the dreamy mental states of temporosphenoidal origin. And there is sound structural basis for the fact that persons passing through morbid internal depressions have perversions or entire abolition of appetite, taste

and smell. The severe mental and emotional depressions in adolescent girls and young women which we wrongly call anorexia nervosa are explicable in these terms also.

A well known physician under my care after a short acute attack of epidemic encephalitis, characterized typically by stupor, diplopia and slight continued fever, experienced an inability to sleep more than four hours in the twenty-four; he had intense motor restlessness, constant elation, a passion for midnight cabaret parties and bursts of talking and walking lasting for hours at a time, which he stated he could in no way control. This manic phase lasted eight months and was followed by a year of depression, slowed activity of mind and body, and occasional irritability. The manic-depressive psychosis ran its course after about two years from the beginning of his illness and then allowed the patient to resume his normal rather sedate and conscientious personality.

COMMENT

I have described at some length my first case of disturbed vegetative function in the course of epidemic encephalitis, but since that time many instances of dementia praecox-like pictures came to our Neurological Department at Bellevue Hospital and to the Neurological Institute. There have been patients with catalepsy, spontaneous or provoked, with fixed bodily attitudes of bizarre character, with altered personalities fluctuating between docility and paranoid opposition; patients with stereotyped and reiterated words and phrases with persistent closure of the eyelids and retention of urine and feces; garrulity alternating with mutism; ethical defects with flight of ideas and euphoria, and at times markedly antisocial trends. The milder cases, however, presented fantastic neurasthenic symptoms, an agitated anxiety, a loss of confidence and exaggerated shyness and self consciousness with feelings of embarrassment, unreality and much slow mindedness.

Some patients suffered from lack of spontaneity and disappearance of all voluntary activity. The emotional tone was apathetic so that, growing disinterested in business, family or friends, the patient ceased to bother about his condition from sheer apathy and mental powerlessness. Mental asthenia may coincide with hallucinations or delusions of a paranoid character, but more usually there is an irritable nervousness toward himself and an inert indifference toward his environment, which for him has become a gray monochrome without significance or form. Such persons usually are sexually impotent, but one sees many instances of greatly increased libido accompanied at times by sadistic behavior. However, in neurology there is happily discerned an inevitability in clinical symptoms emanating from lesions of structures with known physiologic functions. The sympathetic functions after all are centrifugal and centripetal; by their joint action is determined the mood of the organism and they also control smooth muscle contraction and glandular secretion. Lesions therein give rise to dissociation between emotional and voluntary activity of muscle and to alternation in vasomotor control and respiratory rhythm; to emotional mimicry, tachycardia and spastic laughing and crying. Lesions of the hypothalamus and floor of the third ventricle give rise to glycosuria, salivation and increased sweating with maybe pathologic sleep. Tonus in general is under the high control of part of the striatum, and changes in the striatum can give rise to plasticity to the point of catalepsy with tremors and rigidity. Automatic associated movements also are under striatal government: it may be that in paralysis agitata we have an antique expression of both facial

emotion and bodily posture: a phylogenic retrogression—man becomes ape.

We have heard the results of physiologic experiment in these brain areas; in epidemic encephalitis these areas are the seat of perivascular round cell infiltration. This is found around the aqueduct also, together with fat accumulation in the ependymal cells of the lateral ventricles and in the tuft cells of the choroid, and throughout the walls and floor of the third ventricle.

I submit that we must correlate these lesions with disorders of personality as we correlate lesions of the thalamus and striatal bodies with athetosis, tics and tremors. By so doing we shall take a notable step toward developing knowledge of the metabolic rhythm and may even lay the foundation of the science of the pathology of emotional and energetic drives.

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PHOTOSENSITIZATION BY
PHENOTHIAZINE

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AND

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Among the more promising organic insecticides developed as substitutes for lead and arsenic is phenothiazine. When field tests were made on the practical application of this insecticide for control of the codling moth, some of the men applying a spray containing the compound complained later of intense itching, irritation and reddening of the skin. In some cases the reactions were severe, being accompanied by edema and secondary infection in areas of intense hyperemia, and required hospitalization. Attending physicians have diagnosed the reaction variously as sunburn, chemical burn and dermatitis.

In sharp contrast to these reports is the fact that several members of our laboratory staff have worked with phenothiazine for several years on an investigation of its toxicity and have experienced no cutaneous reactions. Applications to the forearms of phenothiazine mixed with hydrous wool fat to promote absorption produced no irritation. In an investigation of the efficacy of phenothiazine as a urinary antiseptic,¹ a series of ninety-two patients were given doses of the compound orally, ranging from 3.12 to 42.9 Gm. for the entire period of treatment, but no undesirable cutaneous reactions were produced.

SUGGESTED EXPLANATION OF CUTANEOUS
REACTIONS

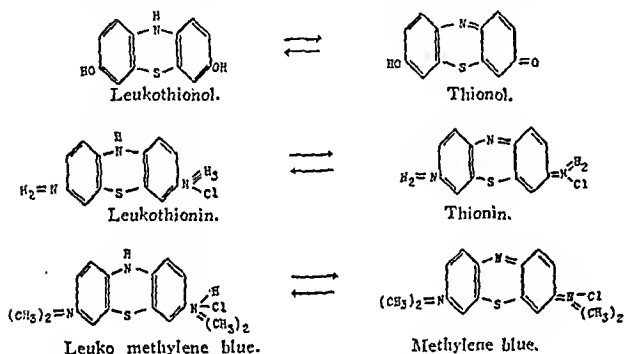
In view of these apparently contradictory facts, an explanation of the toxic reactions observed in orchard workers was sought on the basis of the known fate of phenothiazine in the body² and the environmental conditions of the workers.

Phenothiazine, after oral administration, is oxidized to the reversible oxidation-reduction system thionol-leukothionol. The products excreted in the urine are unoxidized phenothiazine in some soluble form, thionol,

Contribution 454, Food Research Division.
From the Bureau of Agricultural Chemistry and Engineering, United States Department of Agriculture, at the Department of Pharmacology, Stanford University School of Medicine.
1. DeEads, Floyd; Stockton, A. E., and Thomas, J. O.: *J. Pharmacol. & Exper. Therap.* 65: 353 (April) 1939.
2. DeEads, Floyd; Eddy, C. W., and Thomas, J. O.: *J. Pharmacol. & Exper. Therap.* 64: 250 (Nov.) 1938.

leukothionol, and leukothionol in some chemical combination from which it is readily liberated in acid reaction. In the present connection the reversible oxidation-reduction system thionol-leukothionol is of interest. Thionol is closely related to thionin (Lauth's violet) and to methylene blue, as shown in the oxidation-reduction equations employing structural formulas.

These three oxidation-reduction systems have in common a characteristic which may have some bearing on the problem at hand. In each case, the leuco form kept in solution under strictly anaerobic conditions is photosensitive. On exposure to sunlight, the leuco form is converted to the oxidized component. Likewise the porphyrins and chlorophyll are oxidation-reduction systems in which the leuco form is photosensitive. These systems, including thionol as shown later, sensitize individuals to sunburn. Whether photosensitivity of the leuco forms is essential to the production of sensitization to sunburn cannot be stated, but it is interesting to note that the two phenomena are often associated. In addition to these systems other photodynamic sensitizers are known such as erythrosin, rose bengal, rhodamine, anthracene derivatives, acridine dyes, quinine and hypericin. Still others produce sensitiza-



tion to sunburn indirectly through their ability to produce porphyrins by an action on the blood.

Examination of a urine sample obtained from an orchard worker who experienced a cutaneous reaction associated with the spraying of phenothiazine showed the presence of thionol and leukothionol. The presence of these two oxidation products of phenothiazine in the urine proves that phenothiazine must have been absorbed into the body from the skin, possibly by swallowing saliva contaminated with phenothiazine, or more likely from the respiratory tract after inhalation of phenothiazine spray.

Orchard workers applying phenothiazine sprays are subjected to environmental conditions contrasting sharply with those of laboratory workers and the ninety-two patients observed by us.¹ The orchard worker is exposed considerably to sunlight and on warm days may strip to the waist, especially in areas such as the Yakima and Wenatchee valleys of Washington. The exposure to sunlight and heat, the demonstrated presence of thionol in the urine indicating absorption of phenothiazine, and the possibility of a photodynamic effect provide a rational explanation of the undesirable cutaneous reactions in the orchard workers exposed to phenothiazine spray. This theory was subjected to the following tests:

TESTS FOR PHOTSENSITIVITY

We served as experimental subjects in the following manner: The volar surface of one forearm of each subject was divided by drawing an ink line from the

elbow to the wrist, and the area on one side of the line was painted with a 2 per cent alcoholic solution of phenothiazine so as to leave a thin, even deposit of phenothiazine after evaporation of the alcohol. The arm was then exposed to the radiation of a General Electric No. S-1 sun lamp at a distance of 30 inches (76 cm.) in such a manner as to give three areas of different exposure time at right angles to the ink line. This procedure permitted a determination of the exposure time necessary to produce a definite degree of hyperemia in each subject and at the same time show whether the area coated with phenothiazine was more or less susceptible than the corresponding control area. Two subjects (F. D. and R. H. W.) took 0.75 Gm. of phenothiazine in capsules in three divided doses of 0.25 Gm. The third subject (J. O. T.) took capsules of thionol in lieu of phenothiazine. Approximately twelve hours after taking the last dose each subject exposed the volar surface of the other forearm to the radiation of the sunlamp under similar conditions.

The results of these tests may be summarized as follows: The control arm of each subject clearly demonstrated that the area coated with phenothiazine was markedly protected against the development of hyperemia even with the longest exposure. Accordingly it must be concluded that, under the conditions, phenothiazine applied locally caused neither irritation nor predisposition to sunburn. Irradiation of the other arm after oral administration of either phenothiazine or thionol resulted in a sensitization to sunburn as judged by an increased hyperemia in areas receiving the same amount of radiation as the corresponding areas on the control arms. It must be kept in mind that the effects observed necessarily represented a hyperemic area developing about eighteen hours after that on the control arm.

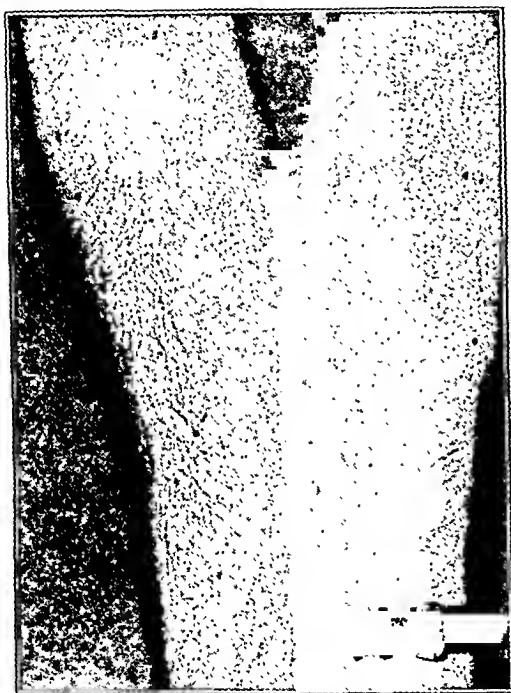
The results obtained on subject R. H. W. are shown in the reproduction of the photograph. To accentuate the results for purposes of reproduction the photograph was made with color blind film so as to insure darkened areas where hyperemia existed. This procedure resulted in the reproduction of freckles as black spots. The ulnar aspect of the volar surface of the left arm shows the lack of hyperemia due to the protective action of locally applied phenothiazine. The radial aspect of the same arm shows three areas of hyperemia due to three different exposure times. The dark band across the volar surface of the right arm shows the more intense hyperemia produced after oral administration of phenothiazine. The exposure time was the same as that for the area of most marked hyperemia on the left arm.

These results strongly suggest that the undesirable reactions experienced by orchard workers when applying phenothiazine sprays are not due to a local irritant action of phenothiazine. More probably they are due to a systemic reaction of the individual to sunlight traceable to a photosensitization produced directly or indirectly by the presence of the oxidation-reduction system thionol-leukothionol in the tissues resulting from the oxidation of absorbed phenothiazine.

If this is true, several remedial measures suggest themselves: 1. Prevent absorption of phenothiazine by wearing a suitable mask. 2. Eliminate undue exposure to sunlight by wearing suitable clothing. 3. Protect exposed areas from sunlight by protective coatings such as zinc oxide ointment or even phenothiazine itself. It should be mentioned that our experiments were made with pure phenothiazine and permit no conclusions regarding the action of possible impurities or other

ingredients in the spray. Lastly, a victim of such photosensitization should, in addition to any soothing local application advised by the attending physician, remain in a dimly lighted room and drink liberal quantities of water to promote diuresis and thereby facilitate excretion of the thionol.

With regard to the mechanism of the photosensitization, two possibilities suggest themselves: The thionol may produce sensitization per se in the same sense that coproporphyrin does or it may give rise to an increased porphyrin content of the blood, as is probably the case with certain other sensitizing agents. Attempts made by us to determine whether or not oral administration of phenothiazine leads to an excretion of coproporphyrin were inconclusive. The method employed for the detection of coproporphyrin in urine depends on observation of the absorption bands in 25 per cent hydrochloric acid. Unfortunately for such identification, thionol



Photosensitization produced by orally administered phenothiazine (subject R. H. W.).

is excreted in the urine, and the absorption bands of thionol in 25 per cent hydrochloric acid are so nearly the same as those of coproporphyrin that we were unable to differentiate the two substances with our spectroscopic.

SUMMARY AND CONCLUSIONS

1. Oral administration of phenothiazine results in the excretion of the reversible oxidation-reduction system thionol-leukothionol.

2. Leukothionol is photosensitive and, under anaerobic conditions, is oxidized to thionol when exposed to sunlight.

3. Oral administration of phenothiazine to two persons and thionol to one person resulted in a demonstrable sensitization to radiation.

4. It is suggested that the cutaneous reactions of orchard workers applying phenothiazine sprays are due to photosensitization and not to local irritation by phenothiazine.

SUPPRESSION OF ISO-AGGLUTININS

AND THE SIGNIFICANCE OF THIS PHENOMENON IN SERUM TRANSFUSIONS

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AND

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Universal donors (group O) are used very commonly for patients belonging to other blood groups. There is a theoretic risk of incompatibility from the use of universal donors whose serum iso-agglutinins are of high titer. Gesse¹ collected forty-six instances of incompatibility resulting in twenty deaths following the use of blood from a universal donor. On the basis of agglutinin titrations he found that more than 30 per cent of universal donors have an agglutinin titer over 1:32, a titer which he considers dangerous. It is obvious that practical experience does not confirm these fears. Vast numbers of transfusions from universal donors are given with complete safety. The rare occurrence of an incompatibility reaction is more apt to be due to inaccurate blood grouping from the use of weak typing serums and weak agglutinin. Erroneous blood grouping is a more frequent cause of incompatibility.²

Why can serum containing iso-agglutinins against the recipient's cells be administered safely? Dilution of the agglutinins³ is not an adequate explanation. Wiener⁴ points out that absorption of the donor's agglutinins by the tissues of the recipient⁵ and neutralization by the recipient's own serum will also tend to prevent a reaction. However, there are no quantitative studies on this absorption effect. The significance and degree of agglutinin suppression has not received sufficient attention or emphasis.

Recent developments in the use of serum or plasma for transfusions focus attention on the importance of agglutinin absorption. Two reports⁶ on the use of plasma transfusions comment briefly that no typing or compatibility tests were performed and no reactions were observed. No explanation, however, is offered for the fact that compatibility tests may be omitted with impunity.

Large amounts (from 100 to 1,000 cc.) of pooled human serum have been administered intravenously by us in the past ten years in more than 1,000 instances, without any evidence of incompatibility. We have always employed pooled human serum (each pool made up of the serum from thirty to fifty different specimens

From the Samuel Deutsch Serum Center.

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2. Wiener, A. S.: Blood Groups and Blood Transfusions, ed. 2, Springfield, Ill., Charles C. Thomas, Publisher, 1939.

3. Ottenberg, Reuben: Studies in Iso-Agglutination: I. Transfusion and the Question of Intravascular Agglutination, *J. Exper. Med.* 13: 425, 1911.

4. Wiener: Blood Groups and Blood Transfusions, footnote, p. 49.

5. Kritschewski, J. L., and Schwarzmann, L. A.: Die gruppenspezifische Differenzierung der menschlichen Organe, *Klin. Wchnschr.* 6: 2081 (Oct. 29) 1927; *ibid.* 7: 896 (May 6) 1928. Witelsky, E.: Ueber gruppenspezifische Organunterschiede beim Menschen, *ibid.* 7: 118 (Jan. 15) 1928; Ueber die Antigenfunktion der alkoholischen Bestandteile menschlicher Blutkörperchen verschiedener Gruppen, *Ztschr. f. Immunitätsforsch. u. exper. Therap.* 49: 517, 1927. Witelsky, E., f. *Immunitätsforsch. u. exper. Therap.* 49: 517, 1927. Witelsky, E., and Okabe, K.: Ueber den Nachweis von Gruppenmerkmalen in den Organen des Menschen, *ibid.* 52: 359, 1927.

6. Tatum, W. L.; Elliot, J., and Nessel, N.: A Technique for the Preparation of a Substitute for Whole Blood Adaptable for Use During Preparation of a Substitute for Whole Blood, *Surg. Gynec. & Obst.* 88: 481 (Dec.) 1939. Strumia, M. M.; War Conditions, Mil. Surgeon 88: 481 (Dec.) 1939. Strumia, M. M.; Wagner, J. A., and Monaghan, J. F.: Treatment of Secondary Shock, *J. A. M. A.* 114: 1337 (April 6) 1940.

of blood). We have observed that large pools of serum never showed rich agglutinin content, whereas many of the individual serums that made up the pool possessed a high agglutinin titer.

We determined to study the agglutinin absorbing action of serum. The tube-slide method was employed. Blood cells were suspended in 0.85 per cent sodium chloride solution. Equal amounts (0.5 cc.) of serum or diluted serum and suspended cells were mixed in a test tube, and after due agitation a sample was removed with a glass rod, placed on a glass slide and examined under a microscope periodically up to thirty minutes after preparation. All the results reported at this time were obtained at room temperature, with controls in the incubator and refrigerator.

Two rows of serum dilutions were set up. In the first row the test serum was diluted with physiologic solution of sodium chloride, while in the second row the test serum was diluted with serum of the opposite group. Thus when group A serum was employed as the test serum, group B serum was used for diluting purposes against the saline dilution as control. When group B serum was used as the test serum, group A serum was the diluent against a saline control. Nineteen serums were tested, as summarized in the accompanying table. The average agglutination observed with the controls of serum diluted with saline solution was 1 to 20+. The average agglutination in the serum diluted with serum was 1 to 2. Two of the twenty serums which we used were very weak in agglutinins,

at present. Neutralization of agglutinins by both tissue and serum of the recipient provides a wide margin of safety in protecting the recipient's red blood cells from the infused agglutinins. This mechanism of agglutinin absorption not only accounts for the practicability of using universal donors but also explains the safety of serum or plasma transfusions without preliminary blood grouping and compatibility tests.

Since there is neutralization of agglutinins in vitro when different groups of serums are mixed, it is recommended that serum or plasma prepared for transfusions should be made up of pools containing all blood groups, resulting in a final low agglutinin titer fluid.

Clinical Notes, Suggestions and New Instruments

RECURRENT HERPES OF THE CORNEA AND RECURRENT HERPETIC FEVER RESULTS OF TREATMENT WITH SMALLPOX VACCINE

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There are many diseases caused by viruses. They occur in plants, for example the mosaic disease in tobacco and the rosette disease in wheat. They are found in birds as in parrot fever and in animals as in equine encephalomyelitis, rabies and foot and mouth disease, which types may also affect man. In man there are many infectious fevers caused by these virus agents. Among these may be mentioned smallpox, measles, chickenpox, epidemic influenza, infantile paralysis, encephalitis, benign lymphocytic choriomeningitis, herpetic fever, herpes zoster and the common cold.

Although recovery from many virus diseases gives an immunity which lasts for years, it is not constant. It is well known that the common cold, herpes labialis and influenza do not protect the individual from subsequent attacks.

All viruses are intracellular parasites, and a number of them give rise to "eococoid bodies" within the cells which they infect. It has been shown that the number of these bodies is a fair index of the infectivity of a virus. These inclusion bodies, or Lipschutz granules, are within the nuclei of the epithelial cells of all herpetic blisters. They bear a striking resemblance to the Guarnieri bodies in smallpox, which are situated in the protoplasm of the cells. Since vaccinia virus protects individuals from smallpox, it was thought that it might be useful in resistant herpetic conditions.

This paper is concerned with the results of treatment with smallpox vaccine of three patients with herpes of the cornea and eleven patients with recurrent herpetic fever. These fourteen patients were seen in private practice, in the wards of the Philadelphia General Hospital and in the Barton Dispensary of the Woman's Medical College Hospital. Since the results have been uniformly successful in all fourteen cases, only one case of each type will be described in detail. Suffice it to say that, except for minor details as to the duration and frequency of the condition and the number of vaccinations necessary, they were all essentially similar. The treatment seemed to be simple, effective and dramatic in its results.

REPORT OF CASES

CASE 1.—A man aged 44 in 1925 complained of a herpetic ulcer in the left cornea which had persisted for six weeks. This attack was preceded by a severe herpes labialis which had been present for two months before the corneal lesion developed. From 1925 to 1930 he had had three similar recurrences of herpes labialis followed by herpes of the cornea and subsequent ulceration. The last ulcer in 1930 persisted for four months, with continuous herpes of the lips. At this time he was under the care of a prominent ophthalmologist, who had had various presumptive foci removed. The patient then remained well for

Suppression of Iso-Agglutinins

Test Serum		Type of Diluting Serum	Type of Cells	Agglutination Titer in	
Number	Type			Saline Dilution	Serum Dilution
1	A	B	B	Over 16	3
2	A	B	B	9	1
3	A	B	B	40	0
4	A	B	B	12	3
5	A	B	B	12	1
6	A	B	B	6	1
7	B	A	A	50	3
8	B	A	A	18	3
9	B	A	A	9	1
10	B	A	A	21	6
11	B	A	A	Over 80	3
12	B	A	A	24	3
13	B	A	A	12	1
14	B	A	A	3	1
15	B	A	A	Over 30	0
16	B	A	A	Over 30	3
17	B	A	A	9	3
18	B	A	A	9	3
19	B	A	A	15	3
Average.....				21	2

so that no agglutination occurred in the saline dilution beyond 1 to 3. One serum was very rich in agglutinins, agglutinating cells in a saline dilution over 1 to 80. On the other hand, in two instances in which serum was used as a diluent of the agglutinating serum, no agglutination could be observed in the lowest dilution of 1 to 1. In seven instances in which serum was used as a diluent, no agglutination was observed beyond a 1 to 1 dilution, and in only one instance was there agglutination seen in a dilution of 1 to 6.

COMMENT

The experiments described demonstrate clearly the agglutinin neutralizing action of serum. This neutralizing property of serum is aided by a like property of all the body cells. This matter is under investigation

more than five years, but in October 1936 a herpetic lesion developed on the face. Since this manifestation always preceded involvement of the eye by about two months, he consulted a dermatologist. However, in fifteen weeks an ulcer developed on the left cornea. Tuberculin tests done at this time gave negative results. He was then seen by the ophthalmologist, who reported a superficial keratitis covering the pupillary area with branched vessels at the limbal margin. He responded slowly to local eye treatment. He was well from April until September 1937, when another herpetic lesion developed involving the lips and face, followed by a herpetic ulcer of the left cornea. Several allergists studied him and reported that his reactions to tests would ordinarily be regarded as negative but felt that food sensitivity was a factor, so banana, grapefruit, chocolate, apple and tomato were interdicted. Sinus studies showed cloudiness of the antrums and the ethmoids. Operations on the sinuses and a tonsillectomy were done. In spite of the diet and the operations there was a recurrence in November 1938. His family physician referred him for study. The patient stated at this time that the present lesion on his lips and face had been there for two months and had been refractory to local treatment. He stated that because of the usual sequence an ulcer of the cornea would be expected to occur almost any time. He was profoundly concerned because he was always incapacitated for from two to four months, and from an economic standpoint he had sufficient cause for worry.

Except for the obvious lesions on the lower lip and chin the physical examination was objectively negative. The prostatic smear yielded negative results. Laboratory examinations of the blood, spinal fluid, urine and feces gave negative results. The serologic reaction for syphilis was negative.

He was vaccinated with freshly procured vaccinia virus. The vaccination was repeated at ten day intervals until he had been vaccinated four times. The first, the third and the fourth vaccinations were taken. Fifteen days after the initial vaccination the lesions on the lip and the chin were almost completely resolved. This was the first time since 1925 that a corneal ulcer had not followed the original herpetic lesion. He has been on a regular diet without any food restriction, has been seen every month for a year and has been symptom free. He has gained weight and feels stronger.

CASE 2.—A man aged 30, seen in the service of Dr. Hobart A. Reimann, Philadelphia General Hospital, complained of chronic fatigue and loss of weight for five years. There had been a mild diurnal fever to 100 F. for this period. He complained of pains in his legs and stated that his entire body ached. The most marked feature had been the constantly recurring fever blisters involving the face, lips and nose, which had been most severe since early December 1938. Since this time his weakness, body pains, weight loss and lethargy had been more profound. He had lost 20 pounds (9 Kg.) up to the time that he was admitted in March 1939. On further questioning the patient stated that for the past five years and particularly since November 1937 he had had recurring attacks of herpes of the nose, lips and face, with pains in his back and severe bone pains every month or six weeks. His most recent attacks had been five weeks and two weeks previous to admission.

The physical examination was essentially negative. The blood pressure and pulse rate were normal and showed no orthostatic abnormality. Roentgenographic investigations of the chest, gastrointestinal tract, colon and genito-urinary tract were negative. Laboratory examinations of the gastric contents, feces and urine were negative. An estimation of the blood chlorides, sugar and urea was within normal limits. The serologic tests for syphilis were negative. Repeated examinations of the blood for malarial parasites were negative. The erythrocytes numbered 3,100,000 and the leukocytes 2,550 per cubic millimeter of blood. The differential smear showed 44 per cent polymorphonuclear neutrophilic leukocytes and 66 per cent lymphocytes. The hemoglobin was reported to be 58 per cent of normal. The basal metabolic rate was minus 12. The electrocardiographic tracings were normal. The temperature record showed a mild diurnal rise of fever from 98 to 100 F., with a proportional increase in the pulse rate.

He received six vaccinations with ordinary smallpox vaccine at fourteen day intervals, and all of them were takes. The patient gained 10 pounds (4.5 Kg.) in three weeks. He felt much stronger and the feeling of ennui disappeared. The fever subsided completely in six weeks. When last seen in November 1939 he was 32 pounds (14.5 Kg.) heavier than he had been. He stated that he never felt better.

COMMENT

An immunity relationship between herpes simplex and smallpox and chickenpox was suggested early in 1927.¹ Schmidt² used the herpetic vesicle fluid to vaccinate eight patients with recurrent herpetic infection, with good results. This method is probably more specific, but if extreme care is not taken the danger of infection is increased. Foster and Abshier³ treated thirty-five patients who had herpes simplex with smallpox vaccine, with only five recurrences. They found that the course of the eruption was decreased in every instance and that immunization to further attacks occurred. Brain⁴ believes that the effectiveness of smallpox vaccine in these cases is purely a nonspecific response. Reimann⁵ believes that the effect is probably a combination of specific and nonspecific factors.

The author heartily recommends the use of smallpox vaccine in the treatment of recurring herpetic infections. It seems to work best if used every ten to fourteen days for from four to eight times. This method has been employed with success and has proved to be safe, efficient and effectual.

SUMMARY

1. Smallpox vaccine was used in the treatment of fourteen patients, three with recurrent herpes of the cornea and eleven with recurrent herpetic fever, all with uniformly good results.

2. Ordinary smallpox vaccine is a reliable, safe, efficient and effectual means of treating herpetic conditions.

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ARTERIOSCLEROSIS OF THE RENAL ARTERY ORIFICES WITH SEVERE HYPERTENSION

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In a recent discussion of experimental hypertension Goldblatt¹ stated that "during the past year, in a few cases of hypertension without renal arteriosclerosis, severe sclerosis and narrowing of the orifice or lumen of the main renal arteries or the lumen of the larger extrarenal branches, obviously sufficient to cause renal ischemia, have been observed." Leiter² reported a case of hypertension believed to be due to sclerosis of the main renal arteries (case 2). The patient's blood pressure varied from 240 to 180 systolic and from 160 to 88 diastolic; the kidneys were very small, one weighing 41, the other only 22 Gm. The glomeruli of the left kidney were hyalinized and numerous tubules were atrophied and obstructed. The main renal arterial branches had an extremely thickened, cellular and fibro-elastic intima; the internal elastica was degenerated. The medium and smaller arteries were the site of extensive degeneration of the elastica and in some of the arteries a new media had developed with a new internal elastic membrane. There was subendothelial

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4. Brain, R. T.: Biological Therapy in Virus Diseases, Brit. J. Dermat. 45: 21-26 (Jan.) 1936.

5. Reimann, H. A., in conversation with the author.
From the Department of Pathology, Columbia University College of Physicians and Surgeons.

Drs. Walter W. Palmer and Allen O. Whipple gave the author permission to transcribe the clinical records.

1. Goldblatt, Harry: Experimental Hypertension Induced by Renal Ischemia: Harvey Lecture, May 19, 1938, Bull. New York Acad. Med. 14: 823, 1938.

2. Leiter, Leo: Unusual Hypertensive Renal Disease? 1. Occlusion of Renal Arteries (Goldblatt Hypertension); 2. Anomalies of Urinary Tract, J. A. M. A. 111: 507 (Aug. 6) 1938.

hyperplasia of the arterioles with but little hyalinization. Many tubules of the right kidney were greatly hypertrophied; others were obstructed. The glomeruli were enlarged; in some the basement membrane was diffusely thickened; in others there were focal hyalinization, numerous adhesions, lipid degeneration and rarely acute hemorrhagic inflammation. The alterations of the arteries were essentially the same as described for the left kidney. The veins of the kidneys were normal.

A case was reported by Freeman and Hartley³ of a man aged 57 with hypertension, presumably on the basis of arteriosclerosis of one main renal artery. Two years before death the patient had his right kidney removed following rupture caused by a fall. Histologically it was normal. In the succeeding sixteen months he was well and several blood pressure readings were normal. Eight months before death, however, his blood pressure was found to be 230/140. At postmortem examination the left kidney weighed 200 Gm. Narrowing the orifice of the left renal artery was a large arteriosclerotic plaque; no narrowing of the renal arterioles was seen. The great majority of the glomeruli were normal; some in scarred areas of the parenchyma appeared to have been recently hyalinized. In the interstitial



Fig. 1.—Hyalinization of glomeruli, pericapsular fibrosis, atrophy of tubules, interstitial fibrosis and leukocytic infiltration (hematoxylin-eosin stain; $\times 110$).

tissue was a moderate polymorphonuclear and mononuclear leukocytic reaction. A few of the tubules contained polymorphonuclear leukocytes.

Leadbetter and Burklund⁴ recorded the case of a Negro boy with an ectopic right kidney accompanied by hypertension. With its removal the blood pressure returned to normal. Apparently the cause of the hypertension was a mass of smooth muscle in the lumen of the right renal artery, markedly narrowing its lumen. No evidence of inflammatory or proliferative changes was found in the excised kidney, which was, however, of only half the normal weight.

In reviewing cases of hypertension, Oppenheimer, Klemperer and Moschkowitz⁵ found eighteen cases of unilateral narrowing of the renal artery, fifteen of which presented hypertension. There were arteriosclerosis and arteriolar sclerosis of the kidney in every case. These workers think that the intrarenal arterial changes preceded and perhaps accounted for the arteriosclerosis of the main renal arteries.

REPORT OF CASE

The case reported here is one in which the essential lesion appeared to be sclerosis of the renal arteries.

History.—A Jewish deliveryman aged 37, married, had three years before admission passed an examination for life insurance; at that time his blood pressure and urine were normal. Two years later he complained of weakness and a dull headache; he had lost 10 pounds (4.5 Kg.). A month later his systolic blood pressure was 230. He was given, without relief, weekly intravenous injections of an unknown drug by his physician. Moderately severe dyspnea began within a month, and he had edema of the ankles in the afternoon and nocturia (from one to three times). He was told that his heart was "bad" and that he had anemia. During the month before he entered the hospital the weakness increased; he was drowsy and suffered from anorexia, nausea and infrequent vomiting. There was dyspnea after climbing six steps; he also had slight orthopnea and occasional twitchings of the muscles of the arms. He had had gonorrhea in his youth and lobar pneumonia eleven years before admission. An undescended left testicle was removed when he was 16 years old. His mother has hypertension.

Examination.—He was well developed, well nourished and slightly dyspneic. The breath was uremic. There were occasional twitchings of the muscles of the hands, feet and lips. The nasal margins of the optic fundi were blurred; the arteries were narrowed and arteriovenous notching was minimal. There was no hemorrhage or exudate. The heart was enlarged, the left border being 1 cm. beyond the left midclavicular line. The second aortic sound was moderately accentuated and louder than the second pulmonic. The liver edge was felt at the costal margin.

Laboratory Data.—Hemoglobin was 35 per cent; red blood cells numbered 1,700,000; white blood cells 9,600; polymorphonuclears 79 per cent; lymphocytes 14 per cent; monocytes 6 per cent; eosinophils 1 per cent. The erythrocyte sedimentation rate was 162 mm.; serum protein 7.5 per cent; albumin 4.0 per cent; globulin 3.4 per cent; nonprotein nitrogen 262 mg. per hundred cubic centimeters, and carbon dioxide capacity 25 volumes per cent. The urine was pale and clear with specific gravity 1.010, reaction acid, albumin + + +, dextrose 0, casts 0, red blood cells 0, white blood cells occasional clumps. The Wassermann and Kline reactions were + + + +. An electrocardiogram showed some slurring of the ventricular complexes in all leads suggesting some fibrosis of the heart muscle.

The blood pressure varied from 195/120 on admission to 170/110-150/100. On the day of death it had risen to 200/120. He vomited frequently. Thirty-six hours after entering the hospital he had severe precordial pain; this was associated with a leathery friction rub over the heart. The venous pressure rose from 150 to 300 mm. of water. The total daily fluid intake was approximately from three to six times the urinary output. The nonprotein nitrogen decreased to 187 mg. per hundred cubic centimeters. The veins of his neck became more distended. During the last two days he was stuporous and had Cheyne-Stokes respiration. On the day of death the total urinary output was 350 cc. He had violent semiconvulsive twitching, which was controlled with difficulty by magnesium sulfate intravenously and by morphine. Death occurred on the sixth hospital day. The clinical diagnosis was chronic glomerulonephritis.

Necropsy.—Only the essential lesions will be discussed. There was moderate edema of the lower extremities and sacral region. The pericardial sac contained 125 cc. of clear amber colored fluid. The parietal and visceral pericardial surfaces were covered with fibrin. The heart weighed 540 Gm. The myocardium was hypertrophied; the valves and endocardium were normal.

In the ascending and transverse portions of the arch of the aorta were numerous elevated yellow intimal plaques. A few similar plaques were present in the thoracic aorta. In the abdominal aorta, in addition to a few small yellow intimal plaques, were two large areas of intimal thickening that completely surrounded and encroached on the orifices of the renal arteries and markedly reduced the size of the openings. The intimal thickening was continued for a short distance into each

3. Freeman, Gustave, and Hartley, George, Jr.: Hypertension in a Patient with a Solitary Ischemic Kidney, J. A. M. A. 111: 1159 (Sept. 24) 1938.

4. Leadbetter, W. F., and Burklund, C. E.: Hypertension in Unilateral Renal Disease, J. Urol. 39: 611, 1938.

5. Oppenheimer, B. S.; Klemperer, Paul, and Moschkowitz, Leo: Personal communication to the author.

nal artery. As a result of these intimal changes the orifice of the left renal artery had been reduced to a minute opening approximately 1 mm. in greatest diameter; the orifice of the right renal artery was somewhat larger, being 3 by 1 mm. in greatest diameter.

The left kidney weighed 75 Gm.; its capsule stripped with slight difficulty. A few small depressions were found on the otherwise smooth grayish yellow surface. Here and there were groups of dilated venules. The cortex varied from 6 to 8 mm. in width. The striations were not clearly defined though they did not appear irregular. The pyramids were paler than the cortex. The papillae were somewhat flattened, the calices were slightly increased in size. The pelvis and ureter were found to be normal.

The right kidney weighed 90 Gm. The capsule stripped with some difficulty. The anterior surface of this kidney resembled that of the left. The posterior surface was more irregular. At either pole and along the lateral margin it was depressed and somewhat uneven in contrast to the central elevated smooth portion. The depressed parts were grayish red and the bulging portion was yellowish gray. The cortex in the depressed areas measured 5 mm. in width and in the central elevated part 11 mm. The striations were nowhere very distinct, though not irregular. The glomeruli were vaguely seen as tiny gray dots. The pyramids were clearly defined; the papillae were somewhat flattened. The calices were slightly dilated. The pelvis and ureter were normal. The arcuate arteries in each kidney were delicate. There were a few intimal plaques in each renal artery beyond the orifice. A small aberrant artery extended into the elevated smooth portion of the right kidney.

Microscopic Examination: Since the main lesions were in the renal arteries and kidneys, the microscopic studies of these will be given in detail.

Sections of the kidneys and renal arteries were studied with a variety of stains—hematoxylin-eosin, azan carmine, elastic tissue-van Gieson and scarlet red. The intima of the renal arteries close to their orifices was thickened by a wide layer of loose meshed connective tissue whose cells were arranged parallel to the media. A few very delicate elastic fibers were found among the connective tissue cells. In the deepest part of this thickened intima of the left artery was a collection of compressed mononuclear cells and a small amount of lipid. Each intimal elastic lamella was swollen and fragmented. The media of each artery was thinner than normal; the adventitia was unaltered. The lumens of the branches of the renal arteries close to the pelvis and within the kidneys were moderately narrowed. The intima of these branches was thickened by loosely arranged fibrous tissue. Lipid was found in many of the connective tissue cells. The internal elastica was reduplicated. The media and adventitia were normal. The arterioles were not thickened, though an occasional one in the scarred areas had some lipid in its wall. No evidence of syphilitic infection was found in any of the arteries.

In both kidneys, over wide areas, glomeruli lay close together. Many of these glomeruli had thickened capsules of Bowman; in others, one or more of the capillary loops were adherent to the capsule. In many the tuft and capsule were fused together and reduced to a bloodless mass of fibrous tissue. Lipid in fine droplets was found in many of these altered glomeruli. Only rarely could tubules be identified between these damaged glomeruli. The epithelial cells of these tubules were filled with finely divided lipid. The condensed stroma in these portions of the kidneys was infiltrated with lymphocytes, and dense collections of similar cells were found at the junction of the cortex and the pyramids (fig. 1).

In the better preserved portions of the kidneys the glomeruli were somewhat larger than normal, their capillaries contained blood and the basement membrane was not thickened. The nearby tubules were moderately dilated; their epithelial cells were flat and atypical. Masses of homogeneous material resembling hemoglobin filled the lumens of many of these tubules. There was edema of the interstitial tissue but no cellular infiltration (fig. 2).

In the pyramids, some of the collecting tubules appeared normal, while others were so shrunken that no lumen could be discerned. Undoubtedly many of the collecting tubules had disappeared, as there were scattered areas in which none could be found. The epithelium of the pelvis was normal.

The central arterioles of the malpighian bodies of the spleen were sclerotic; their walls were thickened and hyalinized. The arterioles of other viscera were normal.

The anatomic diagnosis was atherosclerosis of the aorta, stenosis of the orifices of the renal arteries, atrophy of the kidneys, cardiac hypertrophy and dilatation, acute serofibrinous pericarditis, ascites, hydrothorax and edema of the legs.

COMMENT

The case here reported was of especial interest to clinicians, particularly as regards the character of the renal lesion. Against the diagnosis of malignant hypertension were the marked albuminuria, the severe anemia and the slight arterial lesions and absence of exudate or scarring of the optic fundi. Pyelonephritis was considered an unlikely probability as there was nothing in the history to suggest a previous infection of this

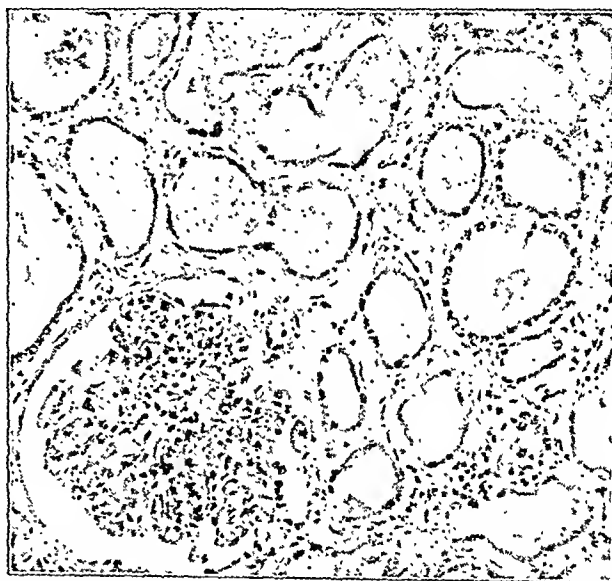


Fig. 2.—Section through the better preserved portion of the right kidney. The tubules are dilated and their epithelium is flattened. The glomerulus is larger than normal. Interstitial tissue is edematous (hematoxylin-eosin stain; $\times 260$).

type. Since the kidneys could not be palpated, renal insufficiency due to congenital polycystic disease was thought to be most unlikely. There remained for consideration chronic glomerulonephritis and, though certain of the features of the case were atypical, this was the final clinical diagnosis. The appearance of the kidneys was not suggestive of typical chronic glomerulonephritis. The broad depressed areas in the renal cortex resembled those seen in healed pyelonephritis. Against this diagnosis is the absence of any evidence of dilatation of the pelvis or ureter and of any indications of a previous or recent infection of these structures. The histologic lesions in the kidneys are obviously not those of chronic glomerulonephritis or of pyelonephritis. The absence of arteriolar sclerosis eliminates the possibility of this vascular lesion being the cause of the renal damage.

There remains for discussion the sclerosis of the renal arteries. The great reduction of the size of the orifices of these arteries must have resulted in an ischemia sufficiently marked to produce renal atrophy. The gross and histologic alterations in the kidneys are such as might be expected to follow marked ischemia. Further support for this view is afforded by the fact that the least affected portion of either kidney is that part having an additional blood supply through the aberrant artery.

USE OF VITAMIN G IN PEMPHIGUS

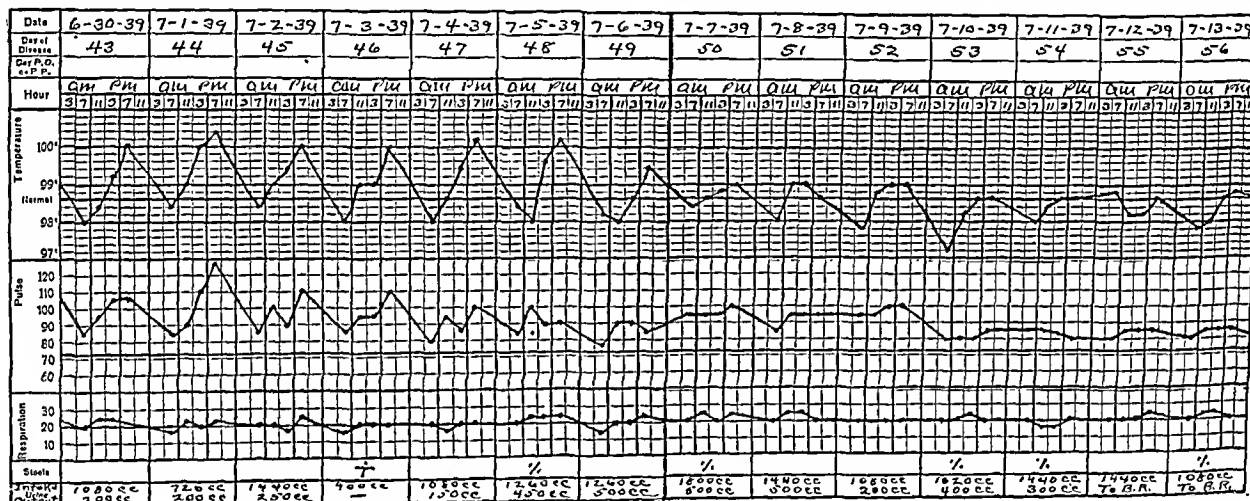
REPORT OF A CASE OF PEMPHIGUS VULGARIS TREATED SUCCESSFULLY
WITH RIBOFLAVINMALACHI C. TOPPING, M.D., AND AUGUST F. KNOEFEL, M.D.
TERRE HAUTE, IND.

The treatment of pemphigus has always been most unsatisfactory, as testified to by the numerous therapeutic agents in use.¹ There are two main types of pemphigus: the acute type in which death occurs in a few weeks, and the chronic type in which often there is a lapse of several years before death supervenes. The most common manifestation of the chronic type is known as pemphigus vulgaris. The use of vitamin therapy in the treatment of this disease is not without precedent. In 1932 Ludy and DeValin reported the uncomplicated recovery in six patients of pemphigus under massive dosage with viosterol. King and Hamilton² have also reported a case controlled by vitamin D therapy.

Many writers remark on the incidence of the disease among the lower strata of society, wherein deficiency diseases are most frequently encountered. Ludy reported that all his patients had subsisted on an unbalanced diet deficient in vitamins. A search of the literature, however, fails to reveal any one's use of vitamin G in the treatment of pemphigus. Its use in this case was on a purely experimental basis and was not predicated on known prior work except as mentioned herein.

General physical examination was essentially negative. He was muscular, of medium height and apparently well nourished. The temperature varied between 98 and 100 F., the pulse between 90 and 110. The Nikolsky sign was present. The Kahn test gave negative results. Analysis of the blood showed hemoglobin 99 per cent (15.04 Gm.), erythrocytes 4,770,000, leukocytes 10,200, polymorphonuclears 56 per cent, lymphocytes 36 per cent, monocytes 8 per cent. The Schilling count was 0-0-6-50. Urinalysis was made on a voided specimen; it was straw colored and slightly cloudy with a specific gravity of 1.024 and an acid reaction. There was no albumin, sugar or acetone present. An occasional epithelial and an occasional pus cell were reported. Blood cultures showed no growth in forty-eight hours. Fasting blood sugar was 104 mg.

Treatment was started with sulfanilamide 0.66 Gm. and sodium bicarbonate 1.33 Gm. three times a day. Continuous wet dressings of aluminum acetate solution were used on the lesions. Neoarsphenamine 0.6 Gm. was given intravenously every fourth day. June 2, fourteen days after admission, there was no indication of any improvement. The lesions present showed no evidence of healing and new lesions continued to appear. Wet dressings were discontinued and starch water and sodium bicarbonate baths were instituted three times a day. Between baths the body and sheets of the bed were freely covered with cornstarch powder. Neoarsphenamine and sulfanilamide were continued as before. June 27, thirty-nine days



Temperature, pulse and respiratory course during hospitalization.

Our purpose in this preliminary report is not to advance or recommend its use but to report a single case in which it apparently effected a rapid and remarkable cure. The material was made by an experimental laboratory and assayed to 970 Sherman-Bourquin units per gram. It is not available for distribution, but sufficient has been made available to two dermatologic clinics for controlled use. A detailed report of their results will be published at an early date.

REPORT OF CASE

H. W., a white man aged 51, married, a coal miner, seen May 19, 1939, complained of a generalized cutaneous eruption of four months' duration covering the entire body, including the right side of the face and the scalp. He stated that the lesions appeared as blisters and that new lesions appeared every few days. He complained also of itching and severe burning pain, associated especially with any activity or sweating. Weakness and vertigo were also present. The lesions consisted of discrete bullous areas measuring from 0.5 to 4 cm. in diameter, situated on an erythematous base. The older lesions were ruptured and in places confluent. They were weeping seropurulent exudate and were covered with incrustations.

1. Lain, E. S., and Lamb, J. H.: Treatment of a Pemphigoid Eruption with Sulfanilamide: Report of a Case, *Arch. Dermat. & Syph.* 37: 840 (May) 1938. Caro, M. R.: Pemphigus: Treatment with Sulfanilamide, *ibid.* 37: 196 (Feb.) 1938. Ludy, John, and Drant, Patricia: Concerning the Treatment of Pemphigus, with Report of Cases, *Urol. & Cutan. Rev.* 40: 105 (Feb.) 1936.
2. King, Howard, and Hamilton, C. M.: Pemphigus Controlled by Vitamin D, *Arch. Dermat. & Syph.* 29: 515 (March) 1939.

after admission, no change was noted. The starch water baths were of benefit in keeping the old infected lesions free from crusts, but otherwise there was no change in his condition. The temperature chart showed a consistent evening rise in temperature to 100 or 100.2 F., the pulse rate showing a corresponding increase.

July 7, the fiftieth day after admission, flavin concentrate 1 Gm. containing 970 Sherman-Bourquin units of vitamin G per gram was administered in orange juice and repeated daily thereafter. There was an immediate flattening of the daily temperature and pulse curves, as clearly shown in the accompanying chart. No new lesions appeared after the beginning of its administration and the old lesions, for the first time, showed definite evidence of healing. Starch baths were continued but all other medication was stopped. The patient was discharged from the hospital July 20, the sixty-third day, and has been seen at weekly intervals since. The old lesions have practically disappeared; there remain only a few erythematous and slightly pigmented areas over the back and chest. No new lesions have appeared. He makes no complaint at the present time except of weakness. His appetite is good, he sleeps well, his temperature remains normal and he has resumed all his usual activities except work in the coal mine. Resumption of this depends to some extent, perhaps, on the adjudication of his claim for workmen's compensation.

505 Tribune Building: -

BILATERAL HABITUAL DISLOCATION OF THE
SHOULDERS IN TWINS

A FAMILIAL TENDENCY

PAUL B. MAGNUSON, M.D., AND JAMES K. STACK, M.D., CHICAGO

The medical literature of the past twenty-five years is replete with articles dealing with recurrent or habitual dislocation of the shoulder. The 250 or more procedures or modifications advocated for the correction of this condition attest the difficulties of finding the ideal one. Most authors stress methods of treatment, but occasionally a pedagogic outline of the subject is found in which etiology and pathology are discussed as well. The discussion of etiology usually revolves around (1) trauma and (2) "a congenital factor." There seems to be little question that severe trauma to the supporting structures of the shoulder will, in the event of improper care (or occasionally with proper care), result in a laxity which will predispose the shoulder to further dislocations. The "congenital factor," however, is referred to in a vague and cursory manner. A congenital elongation of the capsule or its muscular supports, congenital malformation of the humeral head or shallowness of the glenoid cavity are mentioned frequently but seldom with the authority of reports or observations in the dissecting or operating room.

Such an attitude is reasonable, however, because (1) the region of the shoulder and its contiguous structures is a difficult and hazardous field in which to carry out a complete exploration and (2) most of the operations which succeed in correcting habitual dislocation are designed to obviate this necessity by plastic procedures on a remote part of the joint. A capsular plication, any variety of tendon or fascial suspension or an anterior bone block may be done in a purely mechanical way, without first finding the lesion and then correcting it, which is the usual operative procedure. A familial tendency to this vague "congenital factor" is occasionally mentioned by other authors, but we feel that it is effectively illustrated in the instance of the following cases:

REPORT OF CASES

Ri. and Ro. K., male twins aged 19 years, white, were admitted to Passavant Memorial Hospital on Dec. 20, 1934. Each was 5 feet 5 inches (165 cm.) tall. Ri. weighed 126 pounds (57 Kg.) and Ro. 137 pounds (62 Kg.).

The relevant family history was as follows: The father, a paternal uncle and an older brother had habitual dislocations of the right shoulder. Another brother had habitual dislocations of both shoulders. Two sisters had no such difficulty but one sister "had dislocations of her knee until the age of 11." She has had none since.

Ri. stated that the first dislocation of the right shoulder occurred when he was 11 years old. It was caused by a horse stepping on his arm. No further dislocation occurred until he was 17, when the right shoulder "came out" during a football game. He was able to replace it himself, but afterward it became dislocated about once a week. The left shoulder first became involved at the age of 18 while he was playing basketball. He did not consider the injury unusual. During the following year this dislocation was repeated about eight times. He stated that the right shoulder was most easily displaced by throwing motions, while the left was displaced by blows on the arm when it was outstretched over the head.

Clinical and x-ray examination of the shoulder revealed nothing remarkable. The distance between the acromion process and the lateral condyle was the same on the two sides, as was the distance between the lateral condyle and the distal border of the palpable insertion of the pectoralis major. There was no evidence of capsular relaxation of other joints, nor had any other been dislocated.

Ro. stated that his right shoulder first became dislocated when he was 16. Since then such occurrences had been frequent. Any act in which the arm was abducted beyond the horizontal level could precipitate a dislocation. He could replace

it without aid. He first dislocated the left shoulder at the age of 17 and since then had dislocated this shoulder six or seven times. On each occasion it was necessary for him to have an anesthetic before reduction could be accomplished. Here, as in the case of his brother, no clinical or x-ray changes of note could be found. In neither case was the primary trauma unduly severe.

December 21, one shoulder of each boy was operated on, a Nicola teno suspension being done. On March 10, 1935, the same procedure was carried out on the other shoulder of each patient. Two years after the second operation one shoulder of one boy again became dislocated following severe violence in the abducted and extended position. Exploration of the shoulder was carried out and no cause could be found. No recurrence has been reported since.

700 North Michigan Avenue.

Special Articles

TYPHOID IN THE LARGE CITIES
OF THE UNITED STATES
IN 1939

TWENTY-EIGHTH ANNUAL REPORT

As in past years, the information used in the compilation of this report was secured by addressing a communication to the health officer of each of the ninety-three cities, requesting the number of deaths from typhoid both among residents and among non-residents which were recorded in 1939. As the population figures of the 1940 census are not yet available, the uncertainty of rates based on local estimates is recognized. In all instances the local estimate when furnished by the health officer has been used. With

TABLE 1.—Death Rates of Fourteen Cities in New England
States from Typhoid per Hundred Thousand of Population

	1939	1938	1937	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910
Bridgeport.....	0.0	0.0	0.0	0.3	0.5	2.2	4.8	5.0	10.3
Fall River.....	0.0	0.0	0.0	0.2*	2.2	2.3	8.5	12.4	13.5
Lynn.....	0.0	0.0	0.0	0.2	1.5	1.6	3.9	7.2	14.1
New Bedford.....	0.0	0.0	0.0	1.1*	1.5	1.7	6.0	15.0	16.1
Cambridge.....	0.0	0.0	0.8	0.9	2.1	4.3	2.5	4.0	9.8
Lowell.....	0.0	0.0	1.0	1.0*	2.6	2.4	5.2	10.2	15.9
Worcester.....	0.0	0.5*	0.5*	0.6	1.0	2.3	3.5	5.0	11.8
Hartford.....	0.0	0.5*	1.1	1.2	1.3	2.5	6.0	15.0	19.0
Springfield.....	0.0	0.7*	0.7*	1.0	0.4	2.0	4.4	17.6	19.0
Waterbury.....	0.0	0.9	0.0	0.4	1.2	1.0	8.0	18.8	....
Somerville.....	0.6	1.0	0.0	0.4	1.3	1.6	2.8	7.0	12.1
Providence.....	0.4	0.0	0.4	1.1	1.3	1.8	3.8	8.7	21.5
Boston.....	0.4†	0.6†	0.4*	0.6	1.2	2.2	2.5	9.0	16.0
New Haven.....	1.2†	1.2†	1.2	0.7	0.6	4.4	6.8	18.2	30.5

* All typhoid deaths were stated to be in nonresidents.

† Rate computed from population as of April 1, 1930, as no estimate for July 1, 1933, was made by the Census Bureau.

‡ One third or more of the reported typhoid deaths were stated to be in nonresidents.

the approach of the new census day there are some who apparently feel that they have been unduly optimistic in claiming population increases and now submit estimates below that of 1938. The total of each of two groups of cities (South Atlantic and East North Central) is below that of last year. Probably no grave

The preceding articles in this series were published in *THE JOURNAL* May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777; April 5, 1919, p. 997; March 6, 1920, p. 672; March 26, 1921, p. 860; March 25, 1922, p. 890; March 10, 1923, p. 691; Feb. 2, 1924, p. 389; March 14, 1925, p. 813; March 27, 1926, p. 948; April 9, 1927, p. 1148; May 19, 1928, p. 1624; May 18, 1929, p. 1674; May 17, 1930, p. 1574; May 9, 1931, p. 1576; April 30, 1932, p. 1550; May 13, 1933, p. 1491; May 19, 1934, p. 1677; June 8, 1935, p. 2093; June 6, 1936, p. 1983; June 19, 1937, p. 2118; July 30, 1938, p. 414, and May 13, 1939, p. 1941.

These patients were referred by Dr. R. W. Doud of Normal, Ill. From the Division of Surgery, Northwestern University Medical School. Read before the Chicago Surgical Society, Dec. 6, 1939, and before the American College of Surgeons, sectional meeting, New Orleans, Jan. 19, 1940.

statistical error has been committed by using the local estimate rather than falling back on the 1930 census figures. In fact, any such error is insignificant when compared with the variety of figures on typhoid deaths which are submitted (through different channels) by the same local health department or the state health

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910
Utica.....	0.0	0.0	0.0	0.6	1.1	3.9#	...	...	...
Elizabeth.....	0.0	0.0	0.8	0.9	1.6	2.4	3.3	8.0	16.6
Syracuse.....	0.0	0.5*	0.0	0.8	0.8	2.3	7.7	12.3	15.6
Paterson.....	0.0	0.7	0.0	0.9	1.0	3.3	4.1	9.1	19.3
Yonkers.....	0.0	0.7	0.0	0.7	0.5	1.7	4.8	5.0	10.3
Jersey City.....	0.0	0.9	0.3	0.2	0.9	2.7	4.5	7.2	12.6
Albany.....	0.0	1.4	1.3†	1.1	1.8	5.6	8.0	18.6	17.4
Trenton.....	0.0	2.4†	0.8*	1.1	2.1	8.2	8.6	22.3	28.1
Buffalo.....	0.2	0.0	0.2*	0.6	2.7	3.9	8.1	15.4	22.8
New York.....	0.3	0.3	0.3	0.8	1.3	2.6	3.2	8.0	13.5
Pittsburgh.....	0.4†	0.9†	0.7†	0.9	2.4	3.9	7.7	15.9	65.0
Rochester.....	0.6†	0.3	0.0	0.4	1.7	2.1	2.9	9.6	12.8
Philadelphia.....	0.0†	0.7†	1.4	0.9	1.1	2.2	4.9	11.2	41.7
Scranton.....	0.7*†	0.0†	0.7*†	1.4	1.8	2.4	3.8	9.3	31.5
Reading.....	0.9	0.0	0.0	0.4	1.6	6.0	10.0	31.9	42.0
Newark.....	0.9	0.4	0.0	0.3	0.9	2.3	3.3	6.8	14.6
Eric.....	1.6	0.0	0.8*	1.0	0.9	2.3	6.9	49.0	46.6
Camden.....	2.5*	1.6*	1.6	2.8	4.4	5.9	4.0	4.5	4.0

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.
† Typhoid deaths furnished by Pennsylvania Department of Health, Harrisburg.

department. All reallocations by place of usual residence or by source of infection are not completed at the time this report is prepared. There are some cities and states in which reallocations are apparently never prepared. There is great need of uniformity in this respect. It is expected that after the 1940 census figures become available this report can be revised, but even then it is anticipated that the corrections will be of only a minor character.

Paratyphoid has again been excluded. In tables 1 to 8 inclusive (as well as in table 10) a special note has been made of cities in which all deaths occur among nonresidents. This practice was applied first to the figures for 1937 and has been continued through 1939. Another symbol has been used to indicate those cities

TABLE 3.—*Death Rates of Nine Cities in South Atlantic States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910
Wilmington.....	0.0	2.7	1.8	1.5	3.1	4.7	25.8#	23.2#	33.0
Washington.....	0.6	1.0†	1.0	2.6	2.8	5.4	9.5	17.2	36.7
Baltimore.....	0.7†	1.5†	1.2	1.4	3.2	4.0	11.8	23.7	35.1
Norfolk.....	0.8*	0.8	0.8	4.2	2.2	2.8	8.8	21.7	42.1
Tampa.....	1.0	2.0†	0.0	3.0	3.8	19.1	43.9#	...	...
Miami.....	1.4	3.6†	6.3	2.2	3.5	...	...	...	...
Richmond.....	1.6	2.7†	3.2†	2.5	1.9	5.7	9.7	15.7	34.0
Jacksonville.....	1.9	5.2	4.0	1.7	4.4	...	...	...	...
Atlanta.....	2.2	0.9†	1.9†	7.2	11.1	14.5	14.2	31.4	55.4

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.

in which more than one third of the reported deaths were stated to have been among nonresidents.

Special attention is called to the cities listed in table 9 which report no typhoid death during the past two or more years. Bridgeport heads the list with no death in six years. Fort Wayne reports no death in five years, South Bend and Utica no death in four years, Fall River, Lynn, Milwaukee, New Bedford and Wichita no death in three years. Attention is also directed to

the ten cities (Fort Worth, Scranton, Louisville, Norfolk, Canton, San Diego, Dallas, San Antonio, Camden, El Paso) which were not placed on the honor roll in table 10 merely because they have been charged with deaths among nonresidents. These cities may appropriately be considered as belonging in the honor group. Some cities are far more liberal than others in their attitude in accepting for hospitalization cases of communicable disease from the neighboring rural areas. In some instances legal circumstances compel the city to accept cases from the county.

Eleven of the large New England cities (there were only seven in 1938) report no death from typhoid in 1939 (table 1). Bridgeport has extended its good record to six years. Fall River, Lynn and New Bedford record no death in three years; Cambridge and Lowell,

TABLE 4.—*Death Rates of Eighteen Cities in East North Central States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910
Fort Wayne.....	0.0	0.0	0.0	2.2	4.2	12.0	7.3	...	...
South Bend.....	0.0	0.0	0.0	0.7	...	...	...	...	...
Milwaukee.....	0.0	0.0	0.0	0.2	0.8	1.6	6.5	13.6	27.0
Akron.....	0.0	0.4	1.0†	0.8	1.5	2.4	10.6	21.0	27.5#
Evansville.....	0.0	0.9*	2.7†	1.9	6.2	5.0	17.5	32.0	35.0
Flint.....	0.0	1.2	3.0†	0.7	1.6	4.6	22.7	18.8	46.9
Dayton.....	0.0	1.3†	1.4†	0.8	1.9	3.3	9.3	14.8	22.5
Chicago.....	0.3	0.3	0.3	0.4	0.0	1.4	2.4	8.2	15.8
Toledo.....	0.3	0.3*	1.2*	1.3	3.0	5.8	10.6	21.4	37.5
Detroit.....	0.5	0.2†	0.3	0.6	1.3	4.1	8.1	15.4	22.8
Cleveland.....	0.5†	0.3†	0.5	1.1	1.0	2.0	4.0	10.0	15.7
Grand Rapids.....	0.6	0.0	1.0*	0.2	1.0	1.9	9.1	25.5	29.7
Canton.....	0.9*	0.0	0.0	0.0	1.4	2.3	8.0	...	...
Columbus.....	0.9†	0.3	1.5	2.0	2.1	3.5	7.1	15.8	40.0
Cincinnati.....	1.0†	0.6	1.3†	1.4	2.5	3.2	3.4	7.8	30.1
Youngstown.....	1.1	0.0	1.1	1.1	1.1	7.2	19.2	29.5	33.1
Peoria.....	1.6	0.0	1.7*	0.0	0.2	3.7	5.7	16.4	15.7#
Indianapolis.....	1.9†	1.3	1.3	1.2	2.7	4.6	10.3	20.5	30.4

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.

TABLE 5.—*Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931- 1935	1926- 1930	1921- 1925	1916- 1920	1911- 1915	1906- 1910
Chattanooga.....	0.0	1.7	1.7	4.7	8.0	18.0	27.2	25.8#	...
Louisville.....	0.5*	0.5†	0.6*	2.3	3.7	4.9	9.7	19.7	52.7
Birmingham.....	1.0†	1.7†	1.4	3.9	8.0	10.8	31.5	41.3	41.7
Nashville.....	2.0†	4.9†	1.2*	5.6	18.2	17.5	20.7	40.2	61.2
Knoxville.....	3.8	3.9	3.2	5.7	10.7	20.8	25.3#	...	...
Memphis.....	5.7†	3.1†	4.9†	7.9	9.3	18.9	27.7	42.5	55.3

* All typhoid deaths were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.
Incomplete data.

none in two years. Somerville, after passing through four successive years without a death, followed by one death among residents in 1938, now returns to the honor roll with no death in 1939. Springfield reports no death among residents during the past five years, Worcester none for four years, Hartford none for two years. Of three deaths reported from Boston, two occurred in nonresidents. There were only three deaths among residents in the fourteen cities in the New England states (one each in Boston, Providence, New Haven)—a truly remarkable record. The New England cities as a whole (population 2,657,824) have regained first place among the grouped cities (table 13). This enviable place was lost in 1938 to the cities of the East North Central states, which now find themselves in third place in 1939. The Middle Atlantic cities are in second place. In the New England cities there were

recorded six deaths in 1939, only one half the number for 1938 and 1937.

The Middle Atlantic states (table 2) have a group rate (0.37) which is lower than that of 1938 (0.44) and 1937 (0.51). There has been no death recorded in Utica for the past four years, none in Elizabeth for two years. Eight cities (Utica, Elizabeth, Syracuse, Paterson, Yonkers, Jersey City, Albany, Trenton) report no typhoid death in 1939. There were six such cities in 1938, seven in 1937. Scranton records no death among residents during the past six years, Camden none for two years. Buffalo, after two years with no death among residents, reports one such death in 1939; Erie, after no death among residents in four years, reports two such deaths in 1939. Newark records the highest incidence of typhoid in twelve years (twenty-five cases) and the largest number of deaths in seven

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Wichita.....	0.0	0.0	0.0	0.7	1.2	6.3	...	...	...
Kansas City, Kan..	0.0	0.0	0.8*	1.1	1.7	5.0	9.4	31.3	74.5#
St. Paul.....	0.0	0.7	0.0	0.7	1.4	3.4	3.1	9.2	12.8
Des Moines.....	0.0	1.0	0.0	1.0	1.1	1.7	4.4	19.8	45.5
Minneapolis.....	0.2	0.0	0.2*	0.8	0.8	1.9	5.0	10.6	32.1
Omaha.....	0.4	0.0	1.3	0.9	1.3	3.3	5.7	14.9	40.7
St. Louis.....	0.7†	0.5	1.1†	1.6	2.1	3.9	6.5	12.1	14.7
Kansas City, Mo..	0.9	0.7†	1.4†	1.5	2.8	5.7	10.6	16.2	35.6
Des Moines.....	1.3	0.7	0.7	2.1	2.4	2.2	6.4	15.0	23.7

* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

Incomplete data.

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Fort Worth.....	0.5*	2.7†	2.2	4.6	5.9	6.1	10.3#	11.9	27.8
Tulsa.....	1.3	0.0	0.0	1.1	5.3	16.2#	...	...	...
Houston.....	1.6†	3.1	2.0	3.2	4.8	7.6	14.2	38.1	49.5#
Dallas.....	1.6*	4.3†	3.0*	5.4	7.3	11.2	17.2	...	...
San Antonio.....	2.3*	2.3†	3.8	4.2	4.6	6.3	23.3	29.5	35.9
Oklahoma City.....	2.7	1.3	3.1	4.3	7.4#	...	...	...	...
El Paso.....	5.6*	5.9	0.0	4.9	9.1	10.8	30.7	42.8	...
New Orleans.....	6.9†	5.5†	2.3†	9.6	9.9	11.6	17.3	20.9	35.6

* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

Incomplete data.

years (seven deaths). It is stated that practically all of the cases were due to contact with a mild case acting as a carrier. New York reports twenty-two deaths (the same number as in 1938), of which twenty (as in 1938) were among residents. Philadelphia reports twelve deaths (fifteen in 1938), six among residents. Pittsburgh reports three deaths, two among nonresidents. After two years with no death, Reading reports one death among residents. The health officer of Scranton records no typhoid death; however, the Pennsylvania Department of Health has charged one death to this city. Syracuse reports no death among residents during the past four years. In the group as a whole (population 13,602,500) there were fifty-one deaths in 1939 compared with fifty-nine in the preceding year. There was but one geographic area which had a lower death rate for 1939, the New England.

The rate (table 3) for the South Atlantic cities (1.03) is much improved over the rates of 1938 (1.74) and 1937 (1.96) and is considerably lower than that of 1936 (1.55). It is but slightly more than a third

the rate for the quinquennial period 1931-1935 (2.70). In these cities (population 2,622,237) there occurred twenty-seven deaths in 1939 and forty-six in 1938. There was but one city (Wilmington) without a death in 1938, although Norfolk recorded its one death among nonresidents. Nine (one third) of the deaths

TABLE 8.—*Death Rates of Eleven Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population*

	1939	1938	1937	1931-1935	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Salt Lake City.....	0.0	0.0	0.7	1.0	1.9	6.0	9.3	13.2	41.1
San Francisco.....	0.0	0.7	0.6	0.8	2.0	2.5	4.6	13.6	26.3
Seattle.....	0.3	0.0	0.0	0.6	2.2	2.6	2.9	5.7	25.2
Portland.....	0.3	0.0	0.3	0.8	2.3	3.5	4.5	10.8	23.2
Oakland.....	0.3	0.6†	0.3	1.0	1.2	2.0	3.8	8.7	21.5
Los Angeles.....	0.4	0.6†	0.7†	0.8	1.5	3.0	3.6	10.7	19.0
Long Beach.....	0.6	0.6	0.0	0.2	1.1	2.1#	...	...	...
Tacoma.....	0.9	0.0	0.0	0.7	1.8	3.7	2.9	10.4	19.0
San Diego.....	1.0*	0.0	1.6†	1.3	1.0	1.6	7.9	17.0	10.8
Denver.....	1.9	1.0	2.7	1.8	2.6	5.1	5.8	12.0	37.5
Spokane.....	2.4†	2.4†	0.0	1.4	2.2	4.4	4.9	17.1	50.3

* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

Incomplete data.

in the group of cities as a whole occurred among nonresidents. The percentage of deaths among nonresidents is less significant than for former years. Of seven deaths recorded for Atlanta, two were among nonresidents; of four in Washington, one was among nonresidents. Baltimore records but one death among residents (five among nonresidents). The health officer states that only twenty-four cases (less than half of any previous year) were reported in Baltimore. The three deaths in Richmond, three in Jacksonville, two in Miami and one in Tampa occurred in residents.

The East North Central cities (population 9,883,376) experienced a setback and dropped from first place in 1938 to third in 1939 (table 4). The number of typhoid deaths increased from thirty-five to forty-four (the rate from 0.35 to 0.44). The rate remains, however, below that of 1937 (0.62) and of the quinquennial period 1931-1935 (0.75). As in 1938 there are seven cities (Fort Wayne, South Bend, Milwaukee, Akron, Evansville, Flint, Dayton) which report no death in 1939. They are not, however, altogether the same cities. Grand Rapids with one death among residents in 1939, Canton with one among nonresidents, Youngstown and Peoria each with two deaths among residents, have been

TABLE 9.—*Fourteen Cities with No Typhoid Death in 1938 and 1939*

Bridgeport *	Kansas City, Kan.	Salt Lake City
Cambridge	Lowell	South Bend †
Elizabeth	Lynn †	Utica ‡
Fall River ‡	Milwaukee ‡	Wichita ‡
Fort Wayne **	New Bedford ‡	

* No typhoid death in six years.

** No typhoid death in five years.

‡ No typhoid death in four years.

† No typhoid death in three years.

dropped from the honor list. There are four cities (Cleveland, Columbus, Cincinnati, Indianapolis) in which one third or more of the reported deaths were stated to be among nonresidents. Fort Wayne reports no typhoid death in five years, South Bend no death in four years, Milwaukee no death in three years. Chicago reports nine deaths, all among residents. Of five deaths each in Cincinnati and Cleveland, two were among nonresidents. Of eight deaths in Detroit, one was among nonresidents. The health officer reports that, of twenty-

six cases, nine obtained their infection while out of the city, five were infected by contact with typhoid carriers, one was reallocated to Detroit from a neighboring township, and in eleven instances the source of infection could not be ascertained.

TABLE 10.—*Death Rates from Typhoid in 1939*

Honor Roll: No Typhoid Deaths (Thirty-Four Cities)		
Akron	Fort Wayne	South Bend
Albany	Hartford	Springfield
Bridgeport	Jersey City	St. Paul
Cambridge	Kansas City, Kan.	Syracuse
Chattanooga	Lowell	Trenton
Dayton	Lynn	Utica
Duluth	Milwaukee	Waterbury
Elizabeth	New Bedford	Wichita
Evansville	Paterson	Wilmington
Fall River	Salt Lake City	Worcester
Flint	San Francisco	Yonkers
	Somerville	

First Rank: from 0.1 to 1.9 Deaths per Hundred Thousand (Forty-Nine Cities)		
Buffalo..... 0.2	Grand Rapids..... 0.6	Cincinnati..... 1.0†
Minneapolis..... 0.2	Long Beach..... 0.6	San Diego..... 1.0*
Chicago..... 0.3	Philadelphia..... 0.6†	Tampa..... 1.0
New York..... 0.3	Rochester..... 0.6†	Youngstown..... 1.1
Oakland..... 0.3	Washington..... 0.6	New Haven..... 1.2†
Portland..... 0.3	Baltimore..... 0.7†	Des Moines..... 1.3
Seattle..... 0.3	Seranton..... 0.7*	Tulsa..... 1.3
Toledo..... 0.3	St. Louis..... 0.7†	Miami..... 1.4
Boston..... 0.4†	Louisville..... 0.8*	Dallas..... 1.6*
Los Angeles..... 0.4	Norfolk..... 0.8*	Elie..... 1.6
Omaha..... 0.4	Canton..... 0.9*	Houston..... 1.6†
Pittsburgh..... 0.4†	Columbus..... 0.9†	Peoria..... 1.6
Providence..... 0.4	Kansas City, Mo. 0.9	Richmond..... 1.6
Cleveland..... 0.5†	Newark..... 0.9	Denver..... 1.9
Detroit..... 0.5	Reading..... 0.9	Iodanapolis..... 1.9†
Fort Worth..... 0.5*	Tacoma..... 0.9	Jacksonville..... 1.9
	Birmingham..... 1.0†	

Second Rank: from 2.0 to 4.9 (Seven Cities)		
Atlanta..... 2.2	Spokane..... 2.4†	Nashville..... 3.0†
San Antonio..... 2.3*	Camden..... 2.5*	Knoxville..... 3.8
	Oklahoma City... 2.7	

Third Rank: from 5.0 to 6.9 (Three Cities)		
El Paso..... 5.6*	Memphis..... 5.7†	New Orleans..... 6.9†

* All typhoid deaths were stated to be in nonresidents.

† One third or more of the reported typhoid deaths were stated to be in nonresidents.

The six cities (table 5) in the East South Central group (population 1,364,025) again show an increase in the death rate (2.42 in 1939, 2.36 in 1938, 2.10 in 1937). The rate remains far below that of 1936 (3.35)

TABLE 11.—*Number of Cities with Various Typhoid Death Rates*

	No. of 10.0 and Cities	5.0 to Over	2.0 to 9.9	1.0 to 4.9	0.1 to 1.9	0.0 0.9	0.0
1906-1910.....	77	75	2	0	0	0	0
1911-1915.....	79	58	19	2	0	0	0
1916-1920.....	84	22	32	28	0	0	0
1921-1925.....	80	12	17	48	12	0	0
1926-1930.....	92	3	10	30	37	12	0
1931-1935.....	93	0	6	17	28	42	0
1936.....	93	2	6	30	23	22	10
1937.....	93	2	6	23	28	22	12
1938.....	93	1	7	13	29	29	14
1939.....	93	0	7	18	19	33	10
1940.....	93	0	9	11	27	23	23
1941.....	93	0	7	15	18	29	24
1942.....	93	0	3	15	21	36	18
1943.....	93	0	1	13	26	26	27
1944.....	93	0	3	12	14	34	29
1945.....	93	0	3	7	17	32	34

and that of the quinquennial period 1931-1935 (4.81). The actual number of deaths in these six cities increased but one, from thirty-two in 1938 to thirty-three in 1939. For the first time, one of these cities (Chattanooga) is included in the list of those cities without a death in 1939. In addition to this there are three cities (Birmingham, Nashville, Memphis) in which one third or more of the reported deaths were stated to be among nonresidents. It is here evident that the surrounding

rural areas continue to contribute to the hospital load and thus to the death rate of these urban centers. Birmingham, with three deaths, reports one among nonresidents; Nashville, with five deaths, records four in nonresidents; Memphis, with seventeen deaths, reports twelve in nonresidents. The health officer of Memphis reports twenty-eight cases in residents: six among white persons, twenty-two among Negroes. The attack rate for Negroes is nearly six times that of the white population. Since Memphis serves as a hospital center for the surrounding territory, thirty-six additional cases were brought into the city for treatment (thirteen white with five deaths, twenty-three Negroes with seven

TABLE 12.—*Total Typhoid Rate for Seventy-Eight Cities 1910-1939**

	Population	Typhoid Deaths	Typhoid Death Rate per 100,000
1910.....	22,573,435	4,037	20.54
1911.....	23,211,341	3,950	17.02
1912.....	23,835,399	3,132	13.14
1913.....	24,457,989	3,285	13.43
1914.....	25,091,112	2,781	11.03
1915.....	25,713,346	2,434	9.47
1916.....	26,257,550	2,101	8.34
1917.....	26,865,403	2,016	7.50
1918.....	27,086,096†	1,824†	6.73
1919.....	27,735,083†	1,151†	4.15
1920.....	28,244,878	1,083	3.85
1921.....	28,859,062	1,141	3.95
1922.....	29,473,246	993	3.36
1923.....	30,087,430	950	3.16
1924.....	30,701,614	943	3.07
1925.....	31,315,598	1,079	3.44
1926.....	31,929,782	907	2.84
1927.....	32,543,966	648	1.99
1928.....	33,158,150	628	1.89
1929.....	33,772,334	537	1.59
1930.....	34,386,717	554	1.61
1931.....	35,137,915	563	1.60
1932.....	35,691,615	442	1.24
1933.....	35,691,615	423	1.18
1934.....	35,401,715	413	1.17
1935.....	35,401,715	243	0.93†
1936.....	36,216,404	336	0.93†
1937.....	36,771,787	280	0.76†
1938.....	36,972,953	248	0.67††
1939.....	37,112,665	239	0.65††

* The following fifteen cities are omitted from this table because data for the full period are not available: Canton, Chattanooga, Dallas, Fort Wayne, Jacksonville, Knoxville, Long Beach, Miami, Oklahoma City, South Bend, Tampa, Tulsa, Utica, Wichita, Wilmington.

† Data for Fort Worth lacking.

‡ The rate for ninety-three cities in 1935 was 1.03 (total population 37,437,812, typhoid deaths 385), whereas in 1930 it was 1.61 and in 1923 and 1934 it was 1.24 and 1.25 respectively. The 1931-1935 average for the ninety-three cities is 1.31.

§ Rate for ninety-three cities in 1936 was 0.96 (total population 38,249,094, typhoid deaths 365).

Rate for ninety-three cities in 1937 was 0.92 (total population 38,885,435, typhoid deaths 318).

Rate for ninety-three cities in 1938 was 0.74 (total population 39,143,656, typhoid deaths 291).

Rate for ninety-three cities in 1939 was 0.67 (total population 39,354,549, typhoid deaths 265).

Special Note:—Deaths for 1936 have been corrected, as Yonkers originally reported seven deaths and later corrected report to one death.

deaths). As one third of the nonresident patients died, it is fair to conclude that only the unfavorable cases were hospitalized, the milder cases not being sent to Memphis. Knoxville records five deaths, four among residents. Louisville deserves special mention as all three deaths were among nonresidents.

The West North Central group (table 6) (population 2,809,679) shows an increase in the death rate (0.50 in 1939, 0.40 in 1938). In second place in 1938, this group in 1939 just edges out the Mountain and Pacific group for fourth place. The increase in the number of deaths is but three (from eleven in 1938 to fourteen in 1939). As in 1938 there are four cities (Wichita, Kansas City, Kan., St. Paul, Duluth) which report no death in 1939. They are not, however, altogether the same cities. Minneapolis and Omaha, each with one death among residents, have been dropped from the honor list. Minneapolis had reported no death

among residents for three years prior to 1939. Duluth returns to the honor roll after an absence of one year (no deaths in 1936 and 1937). Only one death has occurred in Duluth during the past four years. In 1938 this was the only group in which there was no city with a death rate in excess of 1.0. In 1939 there is no such group, although the West North Central cities maintain second place (Des Moines with 1.3) while the

TABLE 13.—Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions

	Popula- tion	Typhoid Deaths		Typhoid Death Rates				
		1939	1938	1939	1938	1937	1935	1930
New England.....	2,637,824	6	12	0.23	0.45	0.45	0.70	1.31
Middle Atlantic.....	13,602,500	51	59	0.37	0.44	0.51	0.80	1.40
South Atlantic.....	2,622,237	27	46	1.03	1.74	1.96	2.70	4.50
East North Central.....	9,883,376	44	35	0.44	0.35	0.62	0.75	1.29†
East South Central.....	1,364,025	33	32	2.42	2.36	2.10	4.81	8.31
West North Central.....	2,809,679	14	11	0.50	0.40	0.76	1.24	1.83
West South Central.....	2,138,496	68	74	3.19	3.52	2.34	5.36	7.32†
Mountain and Pacific.....	4,276,412	22	22	0.51	0.52	0.68	0.85	1.20

† Data for South Bend for 1935-1939 are not available.
‡ Lacks data for Oklahoma City in 1936.

New England cities take first place (New Haven with 1.2). Kansas City, Kan., reports no death among residents for the past three years, while Wichita records no death either among residents or nonresidents for three years. Of six deaths in St. Louis and four in Kansas City, Mo., three each were among residents.

The eight cities of the West South Central group (table 7) (population 2,138,496) report a reduction in the death rate (3.52 in 1938, 3.19 in 1939). The actual number of deaths decreased from seventy-four to sixty-eight. Special mention should be made of El Paso and San Antonio, each reporting six deaths, all among nonresidents; Dallas recording five deaths and Fort Worth one death, all among nonresidents. New Orleans reports thirty-six deaths, twenty-four among nonresidents. Excluding New Orleans, there were thirty-two deaths reported by the cities in this group, of which twenty-one, or two thirds, were among nonresidents. Houston reports six deaths, three among residents; Oklahoma City six, all among residents.

The cities in the Mountain and Pacific states (table 8) report the same number of deaths as in 1938 (twenty-two) and consequently but a slight reduction in the rate (0.51 in 1939, 0.52 in 1938). While in 1938 there were five cities with no death, in 1939 there were but two (Salt Lake City, San Francisco) such cities and only Salt Lake City appears on the honor roll for the two years. San Diego with no death in 1938 and two deaths among nonresidents in 1939 deserves special mention. Tacoma, Portland and Seattle, each with one resident death, have been dropped from the honor roll. Spokane records three deaths, two among residents. Denver reports six deaths among residents and does not keep a record of deaths among nonresidents. Los Angeles records six deaths, five among residents. In October 1939 thirty-five cases in the city and ten additional cases in the county were caused by a carrier who contaminated chocolate éclairs.

THE HONOR ROLL

The number of cities with no death from typhoid has increased to thirty-four. In 1936 there were but eighteen such cities, in 1937 twenty-seven, in 1938 twenty-nine. Of particular significance are the data in table 9, which furnishes the names of fourteen cities

with no typhoid death in 1938 and 1939. Several cities have continued their excellent records. We again find (as in 1938) three cities in the third rank (table 10). It should be emphasized, however, that in El Paso all deaths were stated to be in nonresidents and in Memphis twelve of seventeen deaths were in nonresidents. As repeatedly stated, several other cities in the first and second rank would appear in the honor roll were they not charged with deaths in nonresidents. Table 11 continues to show a definite swing "to the right" with a marked reduction in the number of cities with a rate of 2.0 and above.

For the seventy-eight cities (table 12) for which data are available since 1910, there occurred 239 deaths from typhoid in 1938, which is the lowest of record (248 in 1938, 280 in 1937). The rate for this group of cities is for the fifth consecutive year less than 1.0. The rate for the ninety-three cities studied in 1939 is also below 1.0 (0.67) and below the corresponding rate for 1937 (0.74). This annual review again shows a downward trend in the death rate from typhoid in the large cities of the United States. No outbreak of epidemic proportion has been recorded in these cities. Routine vaccination of the population is not practiced except under flood conditions. In progressive communities vaccination is urged for contacts to cases and for persons who travel widely in countries where sanitary conditions are not of the best. Noteworthy gains have been made throughout the country. The New England and Middle Atlantic groups have maintained their excellent rates of many years' standing.

OVARIAN HORMONES AND FEMALE GENITAL CANCER

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This paper does not attempt to summarize even the most recent work in this field. Instead, it merely outlines the development of my own point of view on the subject from the early work on the follicular hormone in which normal reactions were reproduced to work of more recent date indicating a possible role of this hormone in mammary and uterine cancer. Since the early work with Dr. Doisy on this hormone was done in St. Louis at Washington University School of Medicine, it means a great deal to me now¹ to be able to present some more recent studies which have led to the experimental production of genital cancer.

I intend first to summarize briefly some of the principal results obtained in studies of animal reactions to ovarian hormones, especially estrogenic hormone, emphasizing above all its effect of producing growth in the female genital organs, for it seems to me that estrogenic hormone above all else is a growth hormone, concentrating its action on the female genital organs.

In the normal animal, after this genital growth hormone has been acting for a while, the genital tissues are raised to a high plane of function, which is usually rather transitory. Then there is a phase of retrogression, especially in the vagina and uterus and to some

The first Barnard Hospital Lecture, read before the St. Louis Medical Society, Oct. 31, 1939.

1. It is a special honor to be invited to give this first Barnard Hospital Lecture, inaugurated under Dr. E. V. Cowdry's directorship of research in this hospital. Contacts with him and with three of his predecessors, Dr. Leo Loeb, Dr. Montrose T. Burrows and Dr. George M. Smith, have contributed a great deal to the development of the point of view expressed herein.

extent also in the mammary glands. In some animals a period of rest intervenes before the estrogenic hormone again reaches a concentration high enough to start another phase of growth in the genital organs.

After summarizing some of the effects of estrogens in experimental animals when the hormone is given in small doses over short periods, attention will be focused on what can be done by long continued treatment with this growth producing hormone in high doses.² In other words, instead of permitting the genital organs to regress and rest briefly after short phases of growth and function, the experiments attempt to keep them growing more or less continuously over long periods. Under such conditions it is possible to produce quite abnormal growths—decidedly atypical growths—and in some cases cancer follows.³

Of course, there may be many etiologic factors in cancer other than hormonal stimulation: genetic, traumatic, chemical, parasitic, and even bacteria, viruses and other factors. Obviously hormonal stimulation is only one of several factors in the etiology of female genital cancer.

A BEGINNING

Because this paper is to sketch my own point of view on this subject, I wish to mention briefly the background. After two years in the army, with graduate work toward a Ph.D. degree incomplete, and never having been farther west than Buffalo, I came to St. Louis in the fall of 1919. My start was as instructor in anatomy in Dr. Terry's department at Washington University School of Medicine. As training for this job of teaching and investigation in a medical school I had had only preparation in zoology.

It was necessary for me to get started on a doctor's thesis. I had been most interested in embryology—in reproduction. No one had succeeded in attempts to fertilize mammalian eggs in vitro. This still seems to me a most interesting problem.

Dr. Charles H. Danforth, now professor of anatomy at Stanford University School of Medicine, had a colony of mice on which he was studying the inheritance of such characteristics as a hereditary anemia present before birth, hereditary obesity peculiar to yellow mice, and other things. This was my introduction to inbred strains of mice as experimental animals *par excellence*.

Seven months of attempting to fertilize mouse eggs yielded only failure. In attempts to get the eggs it was necessary to learn something about the nonpregnant sexual cycle. When the first objective (fertilization in vitro) failed, the estrous cycle became the subject of my thesis, and this led directly to my early work with Dr. Doisy and others on the ovarian follicular hormone.

The problem considered in the thesis was strictly morphologic. The ovary and genital tract were studied microscopically and an attempt was made to explain function by correlating the results.⁴ It was observational. There was no experimental work involved. At that time most statements concerning the internal secretions of the ovaries stressed the corpora lutea as the endocrine glands of the ovary. Clinical books especially, with their emphasis on implantation, seldom mentioned the follicles as possible endocrine structures. Leo

Loeb⁵ and Stockard and Papanicolaou,⁶ working with the guinea pig, and Long and Evans,⁷ working with the rat, had recognized the importance of the follicles in hormone secretion, but their work, like mine with the mouse, was mostly observational and did not include experimental tests of ovarian extracts.

The point that impressed me most strongly from the work on the mouse was that there might be a succession of nonpregnant cycles without ovulation and consequently without the formation of corpora lutea; in other words, that the follicular hormone alone should be sufficient to explain the succession of cyclic phenomena in the nonpregnant uterus and vagina. This focused my attention on the liquor folliculi as a source of this hormone.

At that time the discovery by Banting and Best of insulin had just made investigators hormone conscious, and Drs. Shaffer and Doisy were working intensively on insulin. Dr. Doisy undertook the chemical fractionation of follicular fluid. It is fun now to recall picking over ovaries from a bucket in the meat packing plant, my wife and I aspirating the fluid from the follicles on the kitchen table at home, Dr. Doisy beginning his extraction of the active fraction and our early tests of follicular hormone on mice. One of the remarkable things about that first experiment was that all the animals injected gave positive reactions.⁸

Growth in Female Genital Organs Produced by Estrogens.—Even in those first experiments it was clear that the outstanding effect of this hormone was to produce growth in the female genital organs. This was clearly shown by the vaginal reaction, in which growth in forty-eight hours thickens the vaginal wall of the castrate rodent from two or three layers to more than a dozen layers.⁹ In most instances the treatment was of short duration and the dosages were very small. In the first years of work with this hormone, concentrated extracts were not available. Later crystallization¹⁰ and then synthesis¹¹ of estrogens was accomplished. More than forty substances are now available for which estrogenic activity has been demonstrated.

Estrous Cycles, Successive Waves of Growth.—One of the points which seemed to me most important in the reaction of rodents to injected estrogen was that experimental estrous cycles could be produced by the injection of this follicular hormone. This must mean that, fundamentally, the normal nonpregnant cycle in the vagina and uterus of the mouse was merely a succession of waves of growth, at the peak of which would occur short periods of function and which would be followed by periods of retrogression. In fact, in the normal mouse and rat there is no luteal phase of the cycle unless the animal is mated. It requires cervical stimulation to activate the corpora lutea. So, as far as the nonpregnant cycle in these animals is concerned,

2. The lecture was illustrated by lantern slides, which made a detailed description of the effects of the hormone unnecessary.

3. Allen, Edgar, Hisaw, F. L., and Gardner, W. U.: *Endocrine Functions of the Ovaries*, chapter X in *Sex and Internal Secretions*, ed. 2, edited by Edgar Allen, C. H. Danforth and E. A. Doisy. Baltimore, Williams & Wilkins Company, 1938. Many references are cited here.

4. Allen, Edgar: *The Estrous Cycle in the Mouse*, *Am. J. Anat.* 30: 297 (May) 1922.

5. Loeb, Leo: *The Relation of the Ovary to the Uterus and the Mammary Gland from the Experimental Aspect*, *Surg., Gynec. & Obst.* 25: 300 (Sept.) 1917; *Am. J. Obst.* 76: 681, 1919.

6. Stockard, C. R., and Papanicolaou, G. N.: *The Existence of a Typical Estrous Cycle in the Guinea Pig, with a Study of Its Histological and Physiological Changes*, *Am. J. Anat.* 22: 225 (Sept.) 1917.

7. Long, J. A., and Evans, H. M.: *The Estrous Cycle in the Rat and Its Associated Phenomena*, *Mem. Univ. California* 6: 1, 1922.

8. Allen, Edgar, and Doisy, E. A.: *An Ovarian Hormone: A Preliminary Report on Its Localization, Extraction and Partial Purification, and Action in Test Animals*, *J. A. M. A.* 81: 819 (Sept. 8) 1923.

9. Allen, Edgar, Doisy, E. A.; Francis, B. F.; Gibson, H. V.; Robertson, L. L.; Colgate, C. E.; Kountz, W. B., and Johnston, C. G.: *Hormone of the Ovarian Follicle: Its Localization and Action in Test Animals and Additional Points Bearing upon the Internal Secretion of the Ovary*, *Am. J. Anat.* 34: 133 (Sept.) 1924.

10. Doisy, E. A.; Veler, E. D., and Thayer, S.: *Folliculin from the Urine of Pregnant Women*, *Am. J. Physiol.* 90: 329, 1929.

11. Marker, R. E.; Kamm, O.; Oakwood, T. S., and Laucius, J. F.: *Synthetic Preparation of Estrone (Theelin)*, *J. Am. Chem. Soc.* 58: 1503, 1936.

the corpora lutea are not important. It should be noted that this refers to the nonpregnant cycle. When this statement was made in a paper presented at the Washington University Medical Society, the comment by a prominent clinician was that, while this might be true in the mouse and rat, it certainly didn't apply to the menstrual cycle in women.

Experimental Menstrual Cycles.—This comment led to attempts to produce experimentally menstrual cycles in monkeys. The first work was begun here during the summer of 1923. Later it was possible to establish a colony of monkeys at the University of Missouri and repeat on monkeys this work begun on rodents. The first menstrual cycles experimentally induced by injections of ovarian hormone were completed in castrate monkeys¹² in 1927. It was six years later (1933) that Werner and Collier¹³ at St. Louis University School of Medicine produced the first experimental menstruation in ovariectomized women with theelin. Six years was a long time to wait for confirmation in women of experimental menstruation. At that time the accepted explanation of function of the corpus luteum was followed cessation of function of the corpus luteum. The experimental work on monkeys (as on mice) was preceded by observations on normal animals in which menstrual cycles without ovulation were demonstrated, indicating that the corpus luteum was not essential to menstrual function.

Much opposition immediately arose from clinical sources to the radical idea that the follicular hormone alone was sufficient to explain the fundamental mechanism of menstruation. Some gynecologists still call menstruation without ovulation a pseudomenstruation, although it is difficult or impossible to distinguish it externally from menstruation following ovulation. It is true, of course, that the corpus luteum hormone, progesterone, is necessary to transform the endometrium into its progestational condition (Corner and Willard Allen,¹⁴ Hisaw and his collaborators¹⁵). Also progesterone will hold off or postpone the menstruation which follows withdrawal of estrogen, as shown by Smith and Engle¹⁶ and by Hisaw.¹⁷ But so will continued injections of estrogen. The endometrium in castrate monkeys if the dose of estrogen is raised and maintained.¹⁸ Also the male hormones testosterone and androsterone will postpone menstruation after withdrawal of estrogen.

Again in the experiments with estrogens in adult monkeys,¹² although menstruation was the most obvious external character, the principal point emphasized was the growth induced by the hormone in the female genital organs.²

Accelerated Prepubertal Growth.—It is also possible by injecting small amounts of estrogen to induce the prepubertal growth of the genital organs in both rodents¹⁹ and primates.²⁰ This was done experimentally with estrogen before the gonadotropic function of the pituitary was discovered, with the work of Smith and Engle,²¹ Zondek and Aschheim,²² Hisaw²³ and others on the anterior pituitary gonadotropic hormone; that is, the latter segment of the endocrine chain, the ovarian-genital tract reaction, was worked out and ready for association with the anterior pituitary ovarian reactions.

Mammary Growth.—In the monkey the mammary glands react to estrogen alone by growth of both ducts and alveoli.¹² In some animals it apparently requires the additional action of progesterone for full growth of the alveoli, just as it does for production of a progestational endometrium.

EARLY ATTEMPT AT CERVICAL CANCER

The beginning of my point of view on experimental cancer was an appreciation of the estrogenic hormone as a stimulator of growth of female genital tissues and the vague recognition that a definition of cancer must include the matter of growth—excessive and atypical growth. At a meeting at which the early recognition of cervical cancer was the subject, lantern slides were shown of precancerous conditions of the uterine cervix. A condition of leukoplakia was described and the development of many epithelial pegs along the base of a hypertrophied epithelium was emphasized. These sections were quite suggestive of results obtained in the cervix of the monkey by estrogenic stimulation. They raised the question "Why not try excessive estrogenic stimulation for a long period of time to see if further abnormal growths might be produced?" With Dr. Overholser a series of experiments was begun which consisted of daily injections of estrogens for several months. Some of the experiments were carried beyond a year. Abnormal growths including metaplasia of the cervical glands and marked epithelial overgrowth were induced²⁴ and were diagnosed histologically by others as precancerous.

Lacassagne's Work.—At this time (1932) Lacassagne²⁵ published his successful experiments which recorded the occurrence of mammary cancer in male mice which had been feminized by injections of estrogenic hormones. Estrogen stimulated growth in the mammary rudiments of the male until they were equivalent to the mammary glands of adult females, and then a considerable percentage of the males died of mammary cancer.

Work at Yale.—Complete confirmation of this work of Lacassagne's has been possible at Yale. In the early stages of work at Yale (1933) it became possible to

12. Allen, Edgar, and Doisy, E. A.: The Menstrual Cycle of the Monkey *Macacus Rhesus*: Observations on Normal Animals, the Effects of Removal of the Ovaries and the Effects of Injections of Ovarian and Placental Extracts into the Spayed Animals, *Contrib. Embryol.* (No. 98), Carnegie Inst. Washington 19: 1, 1927.

13. Werner, A. A., and Collier, W. D.: The Effect of Theelin Injections on the Castrated Woman, *J. A. M. A.* 100: 633 (March 4) 1933.

14. Corner, G. W., and Allen, W. M.: Physiology of Corpus Luteum: Production of a Special Uterine Reaction (Progestational Proliferation) by Extracts of the Corpus Luteum, *Am. J. Physiol.* 88: 326 (March) 1929.

15. Hisaw, F. L.; Meyer, R. K., and Weichert, C. K.: Inhibition of Ovulation and Associated Histological Changes, *Proc. Soc. Exper. Biol. & Med.* 25: 754, 1928. Hisaw, F. L.: The Corpus Luteum Hormone: I. Experimental Relaxation of the Pelvic Ligaments of the Guinea Pig, *Physiol. Zool.* 2: 59 (Jan.) 1929.

16. Smith, P. E., and Engle, E. T.: Prevention of Experimental Uterine Bleeding in *Macacus Monkeys* by Corpus Luteum Extract (Progestin), *Proc. Soc. Exper. Biol. & Med.* 29: 1225 (June) 1932.

17. Hisaw, F. L.: The Physiology of Menstruation in *Macacus Rhesus* Monkeys, *Am. J. Obst. & Gynec.* 29: 638 (May) 1935.

18. Zuckerman, Solly: Inhibition and Induction of Uterine Bleeding by Means of Estrone, *Lancet* 2: 9 (July 4) 1936.

19. Allen, Edgar, and Doisy, E. A.: The Induction of a Sexually Mature Condition in Immature Females by Injection of the Ovarian Follicular Hormone, *Am. J. Physiol.* 69: 577 (Aug.) 1924.

20. Allen, Edgar: Reactions of Immature Monkeys (*Macacus Rhesus*) to Injections of Ovarian Hormone, *J. Morphol.* 46: 479 (Dec. 5) 1928.

21. Smith, P. E., and Engle, E. T.: Experimental Evidence Regarding the Role of the Anterior Pituitary in the Development and Regulation of the Genital System, *Am. J. Anat.* 40: 159 (Nov.) 1927.

22. Zondek, Bernhard, and Aschheim, Selmar: Ovarialhormon, Wachstum der Genitalien, sexuelle Frühreife, *Klin. Wchnschr.* 5: 2199 (Nov. 19) 1926.

23. Hisaw, F. L.; Fevold, H. L., and Leonard, S. L.: Effects of Hypophysial Extracts on Sexually Immature Monkeys, *Proc. Soc. Exper. Biol. & Med.* 29: 204 (Nov.) 1931.

24. Overholser, M. D., and Allen, Edgar: Atypical Growth Induced in Cervical Epithelium of Monkey by Prolonged Injections of Ovarian Hormone Combined with Chronic Trauma, *Surg., Gynec. & Obst.* 60: 129 (Feb.) 1935.

25. Lacassagne, A.: Apparition de cancers de la mamelle chez la souris mâle, soumise à des injections de folliculine, *Compt. rend. Acad. d. sc.* 195: 630 (Oct. 10) 1932.

affiliate Dr. L. C. Strong, a geneticist and former associate of C. C. Little, with the Department of Anatomy. Dr. Strong brought with him a colony of inbred cancer mice which seem to have many types of cancer known in human beings. We also obtained the collaboration of Dr. William U. Gardner, who had studied at the University of Missouri with Dr. Turner the responses of the mammary tissue to estrogen and other hormones. Then Dr. G. M. Smith, surgeon and pathologist, who was formerly a member of Dr. Opie's department at Washington University in prewar days and a former director of research at Barnard Hospital, collaborated as pathologist. Without his point of view as pathologist, those of us without clinical training might well have hesitated in embarking on investigations of cancer. Then Drs. William Greulich, Carroll Pfeiffer and Warren Nelson were added to our group²⁶ and an intensive attempt to produce cancer by excessive estrogenic stimulation was begun.²⁷

Inbred Strains of Cancer Mice.—By inbreeding, involving brother to sister mating, more than a dozen different genetic strains of mice have been established with varying susceptibility and resistance to cancer.²⁸ Some of these are as different in characteristics and reactions as are Negroes and white persons. While mammary cancer has been studied most intensively, there are other types of cancer represented in these inbred mice.

In one strain of inbred mice, mammary cancer appears spontaneously in more than 80 per cent of all females before the age of 12 months. It requires only a few weeks for a small palpable nodule to become a large mammary cancer and not very much longer before the mouse dies of this cancer. The inheritance of this disease has been followed through more than forty generations, and in each generation one or more of the females have died of mammary carcinoma.

Sexual Cycles in Cancer Mice.—A challenging question was "What happens to the reproductive system when mammary cancer begins to grow rapidly and to produce a serious drain on the body?" It was known that estrogenic hormones stimulate growth of the mammary glands. Does rapid growth of mammary tissue in a cancer upset the endocrine balance necessary for rhythmic estrous functions in uterus and vagina, which also require estrogenic hormone? Estrous cycles were recorded in cancer mice as soon as the tumors became palpable. As the tumors grew rapidly, the estrous cycles lengthened, became irregular and in some cases disappeared altogether. Microscopic sections showed the vagina and uterus to be very atrophic, similar to the condition of castrate animals, and the ovaries to be very small, like those of very old mice. These animals were by no means old enough to have reached the natural menopause (if one may use that term for a mouse).

Injectations of estrogens into these cancer mice induced full estrous growth in both vagina and uterus and secretion in the uterus.²⁹ Estrogenic treatment did not seem to affect the growth of the cancerous nodules. Implants

of anterior pituitary tissue stimulated the ovaries to follicular growth with, secondarily, estrous conditions in the vagina and uterus. Therefore, both genital tract and gonads in these cancer mice were still reactive. The premature senility of the genital tract was apparently due to inadequate supply of ovarian and anterior pituitary hormones.

Survey of Mammary Glands in Ten Strains of Mice Varying in Susceptibility to Cancer.—While attempting to repeat Lacassagne's observations, a thorough search was made for differences in the mammary glands of ten strains of mice—some cancer susceptible and others cancer resistant.³⁰ Whole mounts of all the mammary tissue in these animals at representative stages of life were studied and foundations of normal conditions laid for later studies of mammary cancer. Many interesting things have been found such as (1) failure of development of the third pair of nipples in one particular strain of mice, (2) failure of some mammary gland rudiments of the male to respond to estrogens while others in the same mouse did respond and (3) persistence of hyperplastic nodules in involuting mammary glands of old mice which seem peculiar to animals of cancer susceptible strains. The existence of multiple hyperplastic nodules at this age provides several potential loci for cancer, and when one grows rapidly into a cancer and is removed another may accelerate growth and become lethal. This is not due to metastases but to multiple hyperplastic loci, with potentialities for development into cancer.

Mammary Cancer in Feminized Male Mice.—Lacassagne's report of mammary cancer in male mice feminized by injections of estrogens has been completely confirmed.³¹ This has been done not only in strains of mice genetically cancer susceptible but also in strains of mice in which mammary cancer in the females is normally low (less than 5 per cent). It has not been possible to obtain mammary cancer in some of the strains which are cancer resistant, chiefly because they do not tolerate the estrogenic treatment; i. e., they die before the cancer age when on estrogen treatment which other strains tolerate. It has also been possible to define the optimum dose for mammary carcinogenesis following estrogenic treatment; i. e., there is a dosage level above that required for experimental estrous cycles which is not carcinogenic in these mice.

Endocrine Evidence from Spontaneous Tumors.—There is evidence from the study of gonadal tumors that endocrine imbalance may be associated with spontaneous tumors; for instance, the secretion of estrogens by testicular tumors. Of extreme interest in relation to intersexual conditions has been the finding of male dogs with mammary hypertrophy.³² These males were treated as bitches by their canine suitors. On laparotomy they were found to have tumors in testicles retained in the abdomen. This seemed to be quite a clearcut case of secretion of estrogen by testicular tumors.

Another instance is a case of multiple tumors of endocrine glands and genital organs.³³ One female

26. Each of these investigators has added a specific technic and contributed much to the development of my point of view.

27. The experiments mentioned in this article were made possible by grants from the Anna Fuller Fund, the International Cancer Research Foundation, the Committee for Research in Problems of Sex of the National Research Council, the Jane Coffin Childs Memorial Fund, and the Fluid Research Fund of Yale University.

28. Strong, L. C.: The Establishment of the C₅₇H Inbred Strain of Mice for the Study of Spontaneous Carcinoma of the Mammary Gland, *Genetics* 20: 586, 1935.

29. Allen, Edgar; Diddle, A. W.; Strong, L. C.; Burford, T. H., and Gardner, W. U.: The Estrous Cycles of Mice During Growth of Spontaneous Mammary Tumors and the Effects of Ovarian Follicular and Anterior Pituitary Hormones, *Am. J. Cancer* 25: 291 (Oct.) 1935.

30. Gardner, W. U., and Strong, L. C.: The Normal Development of the Mammary Glands of Virgin Female Mice of Ten Strains Varying in Susceptibility to Spontaneous Neoplasms, *Am. J. Cancer* 25: 282 (Oct.) 1935.

31. Gardner, W. U.; Smith, G. M.; Allen, Edgar, and Strong, L. C.: Cancer of the Mammary Glands Induced in Male Mice Receiving Estrogenic Hormone, *Arch. Path.* 21: 265 (March) 1936.

32. Greulich, W. W., and Burford, T. H.: Testicular Tumors Associated with Mammary, Prostatic and Other Changes in Cryptorchid Dogs, *Am. J. Cancer* 28: 496 (Nov.) 1936.

33. Gardner, W. U.; Strong, L. C., and Smith, G. M.: An Observation of Primary Tumors of the Pituitary, Ovaries, and Mammary Glands in a Mouse, *Am. J. Cancer* 26: 541 (March) 1936.

mouse had five cancerous nodules of the mammary gland, granulosa cell tumors in both ovaries, a pituitary gland fourteen times as large as normal and the uterus in an extremely cystic and hyperplastic condition. The endocrine relation of pituitary, ovaries, uterus and mammary glands is now well established. Cystic hyperplasia of the uterus has been induced by excessive treatment with estrogens. Pituitary hypertrophy and frank pituitary tumors have also been reported after excessive estrogenic stimulation; in our colony, however, in only one strain of mice and not in others. Granulosa cell tumors of the ovary secrete ovarian hormone, for when transplanted into male mice they induce growth of the mammary rudiments of the host. This reaction will indicate smaller amounts of estrogen than required for estrous growth of the vagina, but it requires two weeks as compared with two days for the latter.

FURTHER EXPERIMENTS IN MONKEYS AND RABBITS

Meanwhile, further experiments were in progress with monkeys and rabbits in which estrogenic stimulation of mammary glands was studied. In young male monkeys with rudimentary glands it requires from six to eight months and a total dose of 80,000 international units of estrogen for growth equivalent to that of the adult nonpregnant female.³⁴ At the end of eight months of continuous estrogenic treatment of young female monkeys the mammary glands are still growing rapidly, while the uterus is small, atrophic and fibrotic—perhaps exhausted from too much estrogenic stimulation. The endometrium is so atrophic that menstruation does not follow cessation of estrogenic treatment. This is an interesting example of differential thresholds of hormone for uterus and mammary glands.

If large amounts of estrogen are injected, maintaining the hormone level considerably above normal for a long time, atypical mammary growths similar to "the witch's broom" on the willow tree may appear. One specimen was obtained from a rabbit, after injection of 5,000 international units of estrogen a week for ten months, in which three fourths of the gland was a new and quite atypical growth from a single branch of a duct of the original gland.

STUDIES OF GROWTH WITH THE COLCHICINE TECHNIC

While attempting to produce genital cancers experimentally, studies of normal growth responses to estrogens were continued. One always welcomes a chance to restudy a question with an improved technic. This opportunity opened following description of the colchicine technic, discovered by Dustin³⁵ and Lits³⁶ at the University of Brussels and advanced by studies of Ludford³⁷ in England. We³⁸ applied this technic to a study of the reaction of the genital tissues of the mouse

and monkey to estrogens. Colchicine, in the proper dose, arrests cells in mitosis, thus summarizing the dividing cells for eight or ten hours or more. This makes it possible to distinguish the part of growth in an organ (defined as increase in size) which is due to actual cell division from that which is due to other factors, such as (1) increased blood supply, (2) increased tissue fluids or (3) enlargement of cells—for all these factors are included when weights of organs are used as criteria of growth. In other words, it distinguishes hyperplasia from hypertrophy.

Seriation of Responses to Estrogen.—Several interesting points have been obtained by seriation of responses to estrogen. For instance, we are now able to seriate properly responses of tissues to estrogenic hormones. One of the first things that follows injection of estrogen into ovariectomized females is dilatation of the vessels which supply the genital organs. This begins within thirty minutes after subcutaneous injection. Vasodilatation is followed by an increase in the tissue fluids, especially in the connective tissues. Then, with the use of the colchicine technic, the beginning of cell division can be located accurately. In the castrate mouse, mitosis begins first in the lateral walls of the vagina and then in the tips of the glands of the uterus. After an initial period of glandular growth, cell division stops in the glands and they begin secreting, while cell division continues in the superficial endometrium. The wave of growth can also be quantitated in the vagina and in the "sexual skin" of monkeys.

New Evidence for Difficult Questions.—It had been suspected that a wave of growth would extend up into the uterine tubes to replace some of the cells which are eliminated in the degenerative stage of the cycle, but it had not been possible to obtain adequate evidence for such replacement. By the use of the colchicine technic it has been possible to show that at certain times these epithelial cells are replaced by cell division.³⁹ The limits of this wave of cell division in the tubes have not yet been clearly defined. Controls injected with colchicine in which tubes contained few cells in mitosis lead to the conclusion that colchicine alone does not stimulate cell division in these organs. It has been clear, however, that the uterotubal junction is often a sharp dividing line between a rapidly growing uterine mucosa and a quiescent tubal epithelium. There is some sort of growth differential at this point.

Trauma Stimulates Growth.—With the colchicine technic it has been demonstrated that stimulation of certain tissues by trauma, as well as by hormones, will induce growth. For instance, Dr. Doisy showed that sampling vaginal contents of test rats with cotton swabs would induce enough growth in the vaginal wall to give false positives in test animals. Partial growth can easily be demonstrated and the extent of cell division shown by use of the colchicine technic.⁴⁰ Also mitosis in muscle fibers of the uterus follows both hormonal stimulation and the traumatic stimulation by distention of the uterus with paraffin pellets.⁴¹ Apparently several stimuli that increase blood supply will induce cell division in tissues in which

34. Gardner, W. U., and Van Wagenen, G.: Experimental Development of the Mammary Gland of the Monkey, *Endocrinology* 22:164 (Feb.) 1938.

35. Dustin, A. P.: La radiothérapie et la chimiothérapie envisagées à la lumière des travaux sur les choes caryoclastiques, *J. sc. méd. de Lille*, 1934, No. 49, pp. 561-573.

36. Lits, F.: Contribution à l'étude des réactions cellulaires provoquées par la colchicine, *Compt. rend. Soc. de biol.* 115:1421, 1934.

37. Ludford, R. J.: Action of Toxic Substances upon Division of Normal and Malignant Cells in Vitro and in Vivo, *Arch. f. exper. Zellforsch.* 15:411, 1936.

38. Allen, Edgar, and Creadick, R. N.: Ovogenesis During Sexual Maturity: The First Stage, Mitosis in the Germinal Epithelium, as Shown by the Colchicine Technic, *Anat. Rec.* 69:191 (Sept. 25) 1937. Allen, Edgar; Smith, G. M., and Gardner, W. U.: Accentuation of the Growth Arrest of Theelin on Genital Tissues of the Ovariectomized Mouse, *Worthington, R. V., and Allen, Edgar: Growth Response to Estrone as Studied by the Colchicine* & *Med.* 12:157 (Dec.) 1939.

39. Allen, Edgar: Hyperplasia in the Epithelium of the Uterine Tubes, *Am. J. Obst. & Gynec.* 35:873 (May) 1938.

40. Rogers, P. V., and Allen, Edgar: Epithelial Growth Caused by Stimulation with Various Small Methods as Demonstrated by Mitotic Stasis with Colchicine, *Endocrinology* 21:629 (Sept.) 1937.

41. Allen, Edgar; Smith, G. M., and Reynolds, S. R. M.: Hyperplasia of Uterine Muscle as Studied by Colchicine Method, *Proc. Soc. Exper. Biol. & Med.* 37:257 (Oct.) 1937.

growth is normally dominated by hormones. This need not necessarily mean that the action of estrogens is merely vasodilator.

The discoverers of the colchicine technic, in attempting to explain the great numbers of mitoses in certain tissues, have suggested that the drug may stimulate mitosis in cells which already have "a blastic potentiality." On the contrary, genital tissues of control castrate mice and monkeys injected with colchicine alone show very little cell division. Apparently they haven't the "blastic potentialities" until stimulated by the hormone or by other stimuli. The controls for these experiments give clearly negative results. When one appreciates that the vagina of a mouse stimulated by estrogenic hormone will grow from two to more than twelve layers of cells in forty-eight hours, there is no need to consider colchicine as used in our experiments a stimulator of mitosis.

SKELETAL ALTERATIONS INDUCED BY ESTROGENS

Estrogens have marked effects on tissues not primarily reproductive. Modification of the pelvis by hormone action to enlarge the birth canal in certain animals is well known. Examples are (1) the resorption of the symphysis pubis of the female pocket gopher at the time of puberty⁴² and (2) the relaxation of the pelvic ligaments of the guinea pig.⁴³ Both can be produced experimentally by injecting hormones.

Mice, males as well as females, on intensive and extended treatment with estrogens undergo complete resorption of the osseous symphysis pubis.⁴⁴ The only bond across the ventral midline is ligamentous. The resorption is so extensive that some of the ventral muscles that were previously attached to the pelvis then take their attachment from the ligamentous bond.

Formation of New Bone in the Marrow Cavities.—While the bone of the symphysis pubis is being resorbed during estrogenic treatment, new bone is being laid down in the marrow cavities of other bones.⁴⁵ In extreme experimental cases the marrow cavities have been completely replaced by formation of new bone. Then, searching in normal mice, it was found that spicules of new bone formed in untreated females toward the end of pregnancy. In normal pigeons and sparrows at the time of egg laying the marrow cavities also show evidence of new bone formation. Serum calcium and phosphorus levels did not rise appreciably in the blood of experimental mammals during this new formation, but in birds on estrogenic treatment these levels can be doubled or even tripled. The lipoids in the serum may also reach a high concentration.

When male sex hormone is injected simultaneously with effective doses of estrogen the skeletal changes are prevented, both the resorption of the symphysis pubis and the formation of new osseous tissue in the marrow cavities of other bones.⁴⁶ This explains why it requires higher estrogenic levels to induce these changes in the skeletons of males than in females.

Osteogenic Sarcomas.—Pybus and Miller (1938) observed a strain of mice in which 80 per cent of the females died with osteogenic sarcomas and in which less than 20 per cent of the males were similarly affected. The injection of estrogens in males of this strain increased the tumor incidence up to that of the females.⁴⁷ As yet, osteogenic sarcomas have not appeared in our colony of mice.

TESTICULAR TUMORS

Long-continued injections of estrogens into the A strain of mice have a very definite effect on the testes. This treatment is followed first by hypertrophy of interstitial tissues and damage to spermatogenic tubules. In some cases the tubules are entirely destroyed and the testes become nothing but hyperplastic masses of interstitial tissue.⁴⁸ They might truly be called testicular tumors.

FIBROMYOMAS OF THE UTERUS

Long-continued injections of estrogens in guinea pigs have been followed by development of multiple fibromyomas of the uterus.⁴⁹ After injection of as much as 50 rat units daily for eight months, the first sign of abnormality was the appearance of extensive bleeding from the vagina, just as in cases of uterine fibroids in women. Laparotomy showed multiple button-like fibromyomatous tumors on the peritoneal surfaces of the uterine cornua. These tumors did not extend into the lumen of the uterus. Whether bleeding from the endometrium is causally related to the tumor masses or merely a parallel development is uncertain.

In the guinea pig there is an extreme epithelial growth of the cervix with metaplasia, pearl formation and other conditions similar to those found in the monkey, but even more extreme. I know of no cases yet of cervical carcinoma in guinea pigs. It is of interest to note that extended treatment with estrogen at high levels has so far failed to produce uterine fibromyomas in mice, rats and monkeys. Why should the guinea pig seem especially susceptible to uterine fibromyomas, as apparently are Negro women?

CERVICAL CARCINOMA

Although attempts to produce cervical carcinomas in monkeys and guinea pigs have not yet been successful in demonstrating independent growths, the final proof has been obtained in mice.⁵⁰ More than twenty tumors diagnosed histologically as cervical carcinomas have appeared following long-continued estrogenic treatment. It has been possible to transplant bits of cervical carcinoma into other mice, males as well as females, and demonstrate independent growth of the cancer in the host without continued hormonal stimulation. As yet there are no cases on record of spontaneous cervical cancers in mice. It is interesting to note that mammary cancer developed in some of these animals and had to be removed surgically to allow the animal long enough life for growth of the cervical carcinoma. There is apparently a time differential between uterine cervix

42. Hisaw, F. L.: The Influence of the Ovary on the Resorption of the Pubic Bones of the Pocket Gopher, *Geomys Bursarius*, *J. Exper. Zool.* 42: 411, 1925.

43. Hisaw, F. L.: Experimental Relaxation of the Pubic Ligament of the Guinea Pig, *Proc. Soc. Exper. Biol. & Med.* 23: 661, 1926; Experimental Relaxation of the Symphysis Pubis of the Guinea Pig, *Anat. Rec.* 37: 126, 1927.

44. Gardner, W. U.: Sexual Dimorphism of the Pelvis of the Mouse: The Effect of Estrogenic Hormones upon the Pelvis and upon the Development of Scrotal Hernias, *Am. J. Anat.* 39: 459 (Sept.) 1936.

45. Gardner, W. U., and Pfeiffer, C. A.: Skeletal Changes in Mice Receiving Estrogens, *Proc. Soc. Exper. Biol. & Med.* 37: 678 (Jan.) 1938.

46. Gardner, W. U., and Pfeiffer, C. A.: Inhibition of Estrogenic Effects on the Skeleton by Testosterone Injections, *Proc. Soc. Exper. Biol. & Med.* 38: 599 (May) 1938.

47. Pybus, F. C., and Miller, E. W.: Bone Tumors and Estrogens, *Nature*, London 142: 872 (Nov. 12) 1938.

48. Gardner, W. U.: Hypertrophy of Interstitial Cells in the Testes of Mice Receiving Estrogenic Hormones, *Anat. Rec.* 68: 339 (June 25) 1937.

49. Nelson, W. O.: Endometrial and Myometrial Changes, Including Fibromyomatous Nodules, Induced in the Uterus of the Guinea Pig by the Prolonged Administration of Estrogenic Hormone, *Anat. Rec.* 68: 99 (April 25) 1937.

50. Gardner, W. U.; Allen, Edgar; Smith, G. M., and Strong, L. C.: Carcinoma of the Cervix of Mice Receiving Estrogens, *J. A. M. A.* 110: 1182 (April 9) 1938; Gardner, W. U., and Allen, Edgar: Malignant and Nonmalignant Uterine and Vaginal Lesions in Mice Receiving Estrogens and Estrogens and Androgens Simultaneously, *Yale J. Biol. & Med.* 12: 213 (Dec.) 1939.

and mammary glands. Also genetic susceptibility or resistance to spontaneous mammary cancer does not seem to be related to cervical carcinoma experimentally produced by estrogens.

Recently Dr. Gardner has completed a series of injections in which male hormone was injected simultaneously with estrogen. The incidence of cervical carcinoma in these mice was higher than in the series in which estrogen alone was used. Perhaps this increased incidence was due to the fact that mammary cancer does not develop in the estrogen-androgen animals and consequently these animals live longer than the estrogen series.

MAMMARY CANCER FOLLOWING METHYLCHOLANTHRENE

In some strains of mice in which mammary cancer seldom appears spontaneously, and which are resistant to mammary cancer after treatment with estrogens, mammary cancer may be induced by injecting the carcinogen methylcholanthrene.⁵¹ That the reaction may be systemic as well as local is shown by the appearance of mammary cancer following application of the carcinogen to the skin of the back.

ARE ESTROGENS CARCINOGENIC?

Many different estrogenic chemicals have been tried as to their ability to produce cancer. So far at least a dozen, including the recently discovered synthetic estrogen stilbestrol, although they have different potencies, have induced these abnormal growths.⁵²

ATYPICAL CONDITIONS PRODUCED BY ENDOGENOUS HORMONES FOLLOWING EXPERIMENTALLY PRODUCED ENDOCRINE IMBALANCE

A criticism of experiments with massive doses of estrogens has been that such enormous amounts as those injected could not possibly result from the secretion of endogenous hormone from the animal's own glands. Recently this objection has been met by ingenious work involving experimental production of endocrine imbalance.⁵³ Dr. Pfeiffer showed that in rodents there is a sexual difference in secretion of gonadotropic hormone by the pituitary. The pituitary of the male is several times more potent than that of the female. He then showed that the testis might successfully be transplanted into female mice the day after birth. These transplants, unlike the goat glands of infamous repute, become vascularized and grow normally in mice of the same inbred strain. Secretion of the transplanted testis masculinizes the female pituitary in that it induces it to secrete gonadotropic hormone at the male level. This apparently induces a hyperovarian endocrine condition and the uterus and mammary glands show atypical growths similar to those described following long-continued estrogenic injections. Therefore it is possible for endogenous hormones to produce similar changes. The inference should not be drawn that in these experiments the ovaries produced amounts of hormone equivalent to those injected in the cancer experiments. Perhaps the steady

(uninterrupted) secretion by the modified glands is the important factor. Besides, no one can tell how much of the injected hormone is destroyed by the body's defense mechanism.

GENERAL CONSIDERATIONS

I realize that "It's a long way from cancer in mice to cancer in women." I also realize that results obtained experimentally in mice may require years for confirmation in women. But surely these experiments on mice have some application clinically! And monkeys are so similar to women in reproductive function that work with them is surely at least subclinical.

The highest incidence of female genital cancer in aging persons at or after the menopause is well recognized. It is known also that ovulation usually stops after the menopause. This eliminates the possible participation of the corpus luteum hormone in periodically modifying or interrupting estrogenic stimulation. Ovarian conditions, however, especially if some cystic follicles develop, would lead one to expect a more or less continuous level of estrogenic stimulation. Therefore a hormone imbalance at this time might well be an important factor in etiology of cancer of the genital organs in women.

One of the most important problems in the matter of aging is whether or not hormone therapy should attempt to extend the function of reproductive organs by administering ovarian hormones after the menopause; that is, in the absence of clearly established pathologic changes. Use of estrogens for severe climacteric symptoms, in senile atrophy and in other conditions is well known. Moderate use of threshold doses, if not continued too long, seems entirely logical in these cases. But after the demonstration that estrogenic treatment, long continued at high levels, is followed by abnormal growths of the female genital organs, including fibroid tumors of the uterus, cervical carcinoma and mammary cancer, the following question may be asked: Is the clinician justified in prescribing enormous doses of concentrated estrogenic preparations for aging women?

Of course, there are the factors of susceptibility and resistance. Attempts to produce genital cancer with estrogens in some species of animals are still unsuccessful. A species or strain resistance seems to protect them.

The body's resistance to high doses of estrogens seems to be centered for the most part in the liver. Its function in detoxification is well established. Greene has shown in rabbits that experimental damage to the liver, similar to that which occurs in toxemias of pregnancy, decreases the effective dose of estrogen and shortens the time of appearance of mammary cancer and that an experimentally induced mastitis may produce similar results.

Again it may be pointed out that in some cases aging women have already been given massive doses of estrogen without subsequent appearance of genital cancer. The answer to this lies in an understanding of cancer incidence. When groups of mice are injected with optimum doses of estrogen for induction of mammary cancer, only a certain percentage will die of cancer. Something of genetic susceptibility or resistance to cancer in mice is known, for half a dozen generations can be bred in a year, but very little is known as yet of genetic susceptibility to cancer in human beings.

Then there is the matter of time lag or interval between a stimulus and the development of cancer, and

51. Strong, L. C., and Smith, G. M.: The Local Induction of Carcinoma of the Mammary Gland by Methylcholanthrene, *Yale J. Biol. & Med.* 11: 589 (July) 1939.

52. Lacassagne, A.: Apparition d'adénocarcinomes mammaires chez des souris mâles traitées par une substance oestrogène synthétique, *Compt. rend. Soc. de biol.* 129: 641, 1938. Robson, J. M., and Bonser, G. M.: Production of Mammary Carcinomas in Mice of a Susceptible Strain by the Synthetic Estrogen, Triphenyl Ethylene, *Nature*, London 142: 836 (Nov.) 1938. Gardner, W. U.: Estrogens in Carcinogenesis, *Arch. Path.* 27: 138 (Jan.) 1939.

53. Pfeiffer, C. A.: The Effects of an Experimentally Induced Endocrine Imbalance in Female Mice, *Anat. Rec.* 75: 465 (Dec. 25) 1939.

there is much evidence to show that in man this may be a matter of years, just as with x-ray burns and radium poisoning.

I do not wish to attach an undue significance to these experimental results with estrogens. It seems to me, however, that they do indicate the possible danger of long-continued high levels of a hormone which is a natural constituent of the normal female body. These results also indicate that, unless an individual is especially susceptible, there are levels of estrogenic treatment which, so far as is known at present, are below the carcinogenic level. If therapeutic levels can be established within a safe range, the danger can be minimized.

333 Cedar Street.

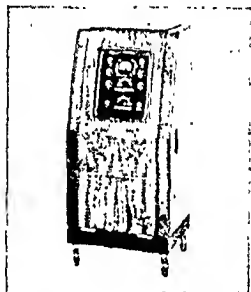
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

FISCHER MODEL S SHORT WAVE UNIT ACCEPTABLE

Manufacturer: H. G. Fischer and Company, 2323 Wabansia Avenue, Chicago.

The Fischer Model S Short Wave Unit is designed for medical and minor surgical diathermy. It combines the cabinet and portable features, since the section containing the short wave mechanism can be removed from the cabinet and carried. Accessories that have been tested include cuff and inductance cable electrodes. Electrosurgical accessories are also available but were not tested. The shipping weight is 122 pounds and the net weight 92 pounds.



Fischer Model S Short Wave Unit.

The apparatus is provided according to order with a 6 or 12 meter wavelength and employs two Westinghouse No. 471 oscillator tubes and two rectifier tubes in a tuned plate, tuned grid circuit. A choke coil is used in the primary circuit to reduce radio interference. The unit is ventilated by air convection. It operates on 105-120 volts, 60 cycle alternating current.

The firm submitted evidence for the claim that with an electromotive force of 115 volts and a full input load of 755 watts the

The Fischer 6 Meter Short Wave Unit, Model S

Average temperature (F.) of six observations:

	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Cuff technic.....	99.5	106.8	98.3	98.8
	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Inductance coil technic....	99.4	107.7	98.3	98.8

output is 350 watts. The Council confirmed this power output by the conventional lamp load method, using four 100 watt tungsten filament bulbs in parallel. The final temperature of the outside windings of the transformer came within the limits of safety after the unit had been operated at full load for two hours.

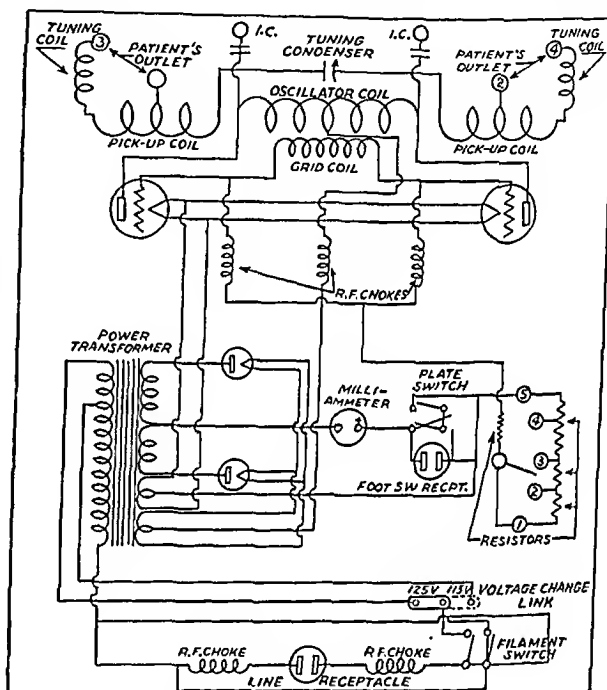
The Model S has a similar circuit to the Council-accepted Model PC (THE JOURNAL, Dec. 24, 1938, p. 2393) and therefore the same evidence for the power of the unit to produce heat deep within human tissue was used for the Model S. The data are given in the accompanying tables.

The apparatus was reported to give satisfactory clinical service in investigations conducted for the Council.

The Fischer 12 Meter Short Wave Unit, Model S

Average temperature (F.) of six observations:

	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Cuff technic.....	99.5	108.0	98.4	98.9
	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Inductance coil technic....	99.5	107.5	98.7	99.0
	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Electromagnetic field.....	97.3	106.4	98.7	98.9
	Deep Muscle		Oral	
	Initial	Final	Initial	Final
Air spaced electrode.....	97.9	106.1	98.3	98.5



Schematic diagram of circuit.

In view of the foregoing report, the Council on Physical Therapy voted to accept the Fischer Model S Short Wave Unit, as used with the cuff and coil electrodes, for inclusion in the Council's list of acceptable devices.

EREX HYPO-ALLERGENIC COVERS (Pillow, Mattress, Crib Covers) ACCEPTABLE

Manufacturer: Erex Hypo-Allergenic Products Company, 763 Boatman's Bank Building, St. Louis.

The Erex Hypo-Allergenic Pillow, Mattress and Crib Covers are intended to protect individuals allergic to dust from pillows and also to provide general sanitation of the pillow and its protection from perspiration. The covers are made of a rubberless fabric called "Revolite." The pillow covers are 21 by 28 inches in size and are intended to be covered by regulation type pillow cases. The mattress covers are available in twin or full bed size.

Two samples of covers were submitted to the Council, in which binding tape was used along the seams. In one, a coated tape similar to the Erex fabric was used, and in the other the customary "stay" tape. The stitching is of the lock-stitch type,

claimed to be a tighter stitch than the chain type. The pillows are closed by an invisible slide fastener and there is a "cup flap" to protect the slide fastener opening and help keep the enclosed pillow in proper place.

The firm claims that the cover is dust proof, perspiration proof and sanitary. It is advocated for asthma, hay fever and sinus sufferers. According to the producers, the covers launder well and will remain permanently soft and pliable. Evidence was submitted by the firm to show the resistance of the covers to heat and cold and a variety of chemical agents.

The covers were investigated by the Council and found to be as satisfactory as such covers probably can be made. The material composing the covers is impervious and stands washing as described in the printed matter submitted with it. When they are filled with water there is practically no leakage along the seams within several minutes. There is, however, the unavoidable leakage around the slide fastener opening. This leakage of water cannot be prevented by any flap, but the manufacturer's idea of using the cuplike flap to extend around the end of the pillow under the slide fastener makes an effective seal against dust.

The Council on Physical Therapy voted to include the Hypo-Allergenic Covers on its list of accepted devices.

Council on Pharmacy and Chemistry

COUNCILS' COMMITTEE ON CONTRACEPTIVES

THE FOLLOWING REPORT WAS PREPARED UNDER THE AUSPICES OF THE COUNCILS' COMMITTEE ON CONTRACEPTIVES AND PUBLICATION HAS BEEN AUTHORIZED.

PAUL NICHOLAS LEECH, Secretary
COUNCIL ON PHARMACY AND CHEMISTRY.
HOWARD A. CARTER, Secretary
COUNCIL ON PHYSICAL THERAPY.

RUBBER SHEATHS

The condom is perhaps the simplest, most widely used contraceptive measure. When properly tested sheaths are used skillfully, the patient obtains practically complete protection. Authorities also agree, in general, that the condom is the most useful of all methods for venereal disease prophylaxis. The review by Cautley, Beebe and Dickinson¹ on the quality and effectiveness of rubber sheaths in prophylaxis was undertaken because of the widespread use of this article.

The chief difficulty of the method lies in the existence of inferior articles. Methods of manufacturing have improved considerably in the past few years when the dipping in crape rubber solution was replaced by the liquid latex method. Nevertheless a large portion of the output by the manufacturers was unreliable, as shown by careful testing. Tests conducted by Voge² of more than 2,000 condoms of various brands demonstrated that a large percentage of condoms were imperfect according to the Voge technic of testing, 50 per cent containing flaws.

The Food and Drug Administration has informed manufacturers that:

Regardless of the nature of the products or methods by which they are used, all articles intended as venereal disease preventives are subject to the provisions of the act [Federal Food and Drug Act].

It is the consensus of present-day medical opinion that no article which depends on its chemical action for its preventive properties is sufficiently effective against all venereal diseases to justify an unqualified claim for the prevention of venereal disease. Other articles depending for their prophylactic effect on preventing contact with infecting organisms should be free from defects.

Preventive claims should be unambiguous and limited to the disease or diseases against which the article is known to be effective. The directions should be such as to insure suitable use.

In the year ended June 30, 1939, the sampling and examination of prophylactics by the Department of Agriculture resulted in the seizure of seventy-five consignments. This department is continuing to collect and examine a great many more samples. This action has resulted in some firms closing down their plants

1. Cautley, Randolph; Beebe, Gilbert W., and Dickinson, Robert L.: Rubber Sheaths as Venereal Disease Prophylactics, *Am. J. M. Sc.* 1933: 155 (Feb.), 1938.

2. Voge, C. I. B., quoted by Cautley, Beebe and Dickinson.¹

to install new machinery and improve their manufacturing processes. The more recent investigations have shown that imperfect samples are still encountered, but that the market contains a far higher quality rubber sheath than at any other time.

It is therefore anticipated that in the future most condoms purchased on the market will conform to the desired degree of quality which would make for a fairly reliable method for venereal prophylaxis as well as for purposes of therapeutic contraception.

Council on Foods

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.

FRANKLIN C. BING, Secretary.

FOODS FOR SPECIAL DIETETIC PURPOSES (See Accepted Foods, 1939, p. 295).

Northwest Powdered Fruit Laboratories, Inc., Yakima, Wash.

Po-AP, a granular form of powdered dried apple pulp from several varieties of apples. This product is useful in the dietary management of diarrhea.

Analysis (submitted by manufacturer).—Moisture 4.5%, total solids 95.5%, ash 1.6%, fat (ether extract) 3.4%, protein (N \times 6.25) 1.5%, crude fiber 4.2%, reducing sugars before inversion 53.0%, sucrose [(total reducing sugars after inversion minus reducing sugars before inversion) \times 0.951] 18.1%, pectic acid (alcohol precipitate) 3.9%, total carbohydrates other than crude fiber (by difference) 84.8%, iron (Fe) 0.00275%, calcium (Ca) 0.0204%, magnesium (Mg) 0.0282%, phosphorus (P) 0.0029%, sulfur (S) 0.032%, sodium (Na) 0.107%, potassium (K) 0.847%, chlorides (Cl) 0.21%, copper (Cu) 0.00077%, lead (Pb) none, arsenic (As₂O₃) 0.00015 grain per pound of apple powder, sulfur dioxide (SO₂) 0.005%.

Calories.—3.5 per gram; 99 per ounce.

MILK AND MILK PRODUCTS (See Accepted Foods, 1939, p. 230).

Helm Goat Milk Products, Grass Lake, Mich.

HELM'S BRAND DEHYDRATED GOAT'S MILK, a spray-dried, homogenized whole goat's milk.

Analysis (submitted by manufacturer).—Moisture 1.0%, total solids 99.0%, ash 6.5%, fat (ether extract) 29.0%, protein (N \times 6.38) 25.0%, lactose (by difference) 38.5%.

Calories.—5.2 per gram; 148 per ounce.

VEGETABLES (See Accepted Foods, 1939, page 345).

General Foods Corporation, New York, product distributed by Frosted Foods Sales Corporation, New York.

BIRDS EYE BRAND QUICK-FROZEN GREEN PEAS, quick-frozen, ready-to-cook, green peas, conforming to the U. S. D. A. tentative standards for frozen peas, as U. S. Grade A (fancy).

Manufacture.—The peas are packed in a number of plants located in different sections of the United States. Trained field representatives exercise control over the selection, cultivation and harvesting of the crops, as well as the packing and freezing operations in all plants. The method of processing has been described briefly in the report of the Council on Foods [Rose, Mary S.: The Effect of Quick Freezing on the Nutritive Values of Foods, *J. A. M. A.* 114:1357 (April 6) 1940] as the indirect contact, multiple plate method, with multiple plate freezers. The blanched peas are packed in cellophane-lined cartons which are sealed in wax paper. Cartons of the finished product are transported in specially designed refrigerator cars in which the temperature is reduced to from 15.6 to 11.1 C. When the foods reach their destination they are stored at —17.8 C. until they are delivered to a distributor. Refrigerator cases are used in retail stores and in institutions to maintain the products at low temperatures. The Frosted Foods Sales Corporation provides dealers and institutions with detailed instructions for the care of the cases.

Analysis (submitted by manufacturer).—Average: Moisture 81.2%, total solids 18.8%, ash 0.6%, fat (ether extract) 0.5%, protein (N \times 6.25) 5.2%, crude fiber 2.1%, sucrose 4.8%, reducing sugars 0.00, starch 2.3%, carbohydrates other than crude fiber (by difference) 10.4%. Range: Moisture 80.0 to 82.8%, total solids 17.2 to 19.8%, alcohol insoluble solids 12.5 to 18.0%, ash 0.5 to 0.6%, fat (ether extract) 0.4 to 0.6%, protein (N \times 6.25) 4.9 to 5.5%, crude fiber 1.8 to 2.3%, sucrose 4.4 to 5.4%, reducing sugars 0.00, starch 1.8 to 3.2%, carbohydrates other than crude fiber (by difference) 9.6 to 10.8%.

The firm reports (1939) the vitamin content to be as follows (fresh basis): vitamin A from 3.0 to 5.5 micrograms of beta carotene (equivalent units) per gram, vitamin B₁ from 1.0 to 1.5 international units per gram, vitamin G (riboflavin) from 0.7 to 1.0 international units per gram, vitamin C from 0.13 to 0.26 mg. of Sherman-Bourquin units per gram, vitamin C from 0.13 to 0.26 mg. of ascorbic acid (equivalent to from 0.65 to 1.30 international units) per gram.

Calories.—Average: 0.67 per gram; 19.03 per ounce. Range: 0.62 to 0.68 per gram; 17.6 to 19.3 per ounce.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MAY 25, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE PHARMACOPEIAL CONVEN- TION OF 1940

Last week approximately 500 representatives of medicine, pharmacy and related sciences assembled in Washington to constitute the decennial U. S. Pharmacopeial Convention. Ten years has elapsed since the last previous convention, which THE JOURNAL described as a farcical assemblage if considered from the point of view of scientific progress. Industrial interests overwhelmed that convention with representatives; the ratio of pharmaceutical interests to scientific medicine was about five to one. The results were fortunately not as disastrous as then seemed likely because a number of faithful and competent workers, appointed to the Revision Committee, sacrificed time and effort to bring forth a creditable pharmacopeia.

The Pharmacopeia is vital to physicians because it establishes the legal standards under which the United States government enforces the purity of official drugs in interstate commerce. Because of its particular significance to the practice of medicine, the American Medical Association through its Board of Trustees, its Council on Pharmacy and Chemistry and THE JOURNAL, has always urged efforts toward the development of the best pharmacopeia possible for the needs of modern medicine. This year, by editorials in THE JOURNAL and by correspondence, every reputable medical school and every state medical association was urged to send delegates. The delegation was much larger than ten years before but still not as large as it should have been. The spirit of the convention was far different from that which prevailed previously. The report of the president of the convention, Dr. Walter A. Bastedo, was followed by papers by Dr. Morris Fishbein of the American Medical Association delegation, by Mr. E. F. Kelly, representing the American Pharmaceutical Association delegation, and by Mr. W. G. Campbell, commissioner of the Food and Drug Administration. Two of these papers emphasized the unwieldy character of the convention and the need for modernizing its methods of procedure. These suggestions were received cordially by the reference committee to which the papers were referred and endorsed by the convention. The delegation of the American Medical Association presented, and the convention adopted, the following resolution:

Resolved, That the President and the Board of Trustees be authorized to appoint a committee of nine, consisting of four physicians, four pharmacists and one representative of a governmental agency, and including the president, the secretary and the chairman of the revision committee, ex officio, to make a revision of the constitution and by-laws of the United States Pharmacopeial Convention; and

That this revision be submitted to the convention at a special session to be called by the Board of Trustees not more than two years from the date of adjournment of this session; and

That the following principles be considered in the preparation of this proposed revision:

1. The development of a representative body of a size capable of functioning efficiently.
2. Suitable and proportional representation for medicine, pharmacy, dentistry, veterinary medicine, governmental agencies and manufacturing pharmacy.
3. Selection of well qualified experts to undertake the necessary periodic revisions of the Pharmacopeia.
4. Selection of a governing body or board of trustees with continuous overlapping terms of office to provide for continuity of policy and action.
5. Revision and publication every five years with interim supplements.
6. Establishment of fundamental criteria for admission of drugs and preparations to the Pharmacopeia.
7. Establishment of a full time executive staff without personal affiliation with any private agency.

Mr. Campbell emphasized the fact that establishment of standards for drugs was wholly within the purview of the convention and that the Food and Drug Administration had no disposition to dominate in any way the

action of the Revision Committee of the Pharmacopeia unless there should arise some emergency in which public health would demand action. Even in this event, he said, any action would be taken only after consultation with the Pharmacopeial authorities.

The convention also changed a number of the by-laws of procedure; the changes will presumably be in effect until a new constitution and by-laws are adopted. Hereafter each delegation will be entitled to only one vote. This was in conformity with the suggestions which had been made repeatedly by *THE JOURNAL*.¹ It was tacitly understood that the Committee on Revision would be composed of one-third medical representatives and two-thirds pharmacists, but that the medical representatives would have full control on questions of therapeutic scope.

Dr. C. W. Edmunds, who has served long and well as a member of the Revision Committee, was chosen president of the convention for the next decennial period. The Board of Trustees (composed of two physicians and three pharmacists) now consists of Dr. Walter A. Bastedo, Dr. Morris Fishbein, editor of *THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION*, Mr. Robert L. Swain, editor of *Drug Topics* and *Drug Trade News*, Mr. E. F. Kelly, secretary of the American Pharmaceutical Association, chairman, and Dr. E. E. Little, dean of the Rutgers School of Pharmacy. The members of the Revision Committee, whose names appear elsewhere in the news columns of *THE JOURNAL*, chose Dr. E. Fullerton Cook to continue in the important position of chairman of the Revision Committee. Dr. Cook has ably conducted the revision of the Pharmacopeia in the last decade and a half.

The 1940 convention may well stand in medical and pharmaceutical history as a turning point toward progressive procedure in the formulation of this important compendium. If a new constitution and by-laws are adopted in accordance with the instructions of the convention, work will be facilitated, self seeking will be discouraged and a scientific spirit will be maintained. No longer will there be the difficult task of securing sufficient representation in medicine and progressive pharmacy for a meeting in which predatory interests might otherwise overrule the decisions. Proportionate representation will undoubtedly be provided on a scale which will develop a smaller and more efficient assemblage. In the future, no doubt, members may be chosen for the Revision Committee on the basis of competence primarily rather than because of ability to attend the convention. The best men available should aid in the revision. The Pharmacopeial Convention of 1940 represents the fruitful union of the most progressive elements of both medicine and pharmacy and should result in the production of the best pharmacopeia in the world.

CHEMOTHERAPY OF INFECTIOUS DISEASES

In 1904 Ehrlich summarized the aims of chemotherapy: "What we seek is 'specific chemotherapy,' that is, we are in the search of a drug which should be capable of destroying certain parasites without at the same time causing too much damage to the host." Since that time chemotherapy has accomplished notable successes in the treatment of diseases caused by protozoa and spirochetes and more recently by other bacteria. The use of organic arsenical compounds in the treatment of syphilis, of plasmochin and atabrine in malaria, of quinoline derivatives in ameba amebiasis and of antimony compounds in the treatment of leishmaniasis is well established. In the case of bacterial disease the problem proved to be much more difficult because the organisms are much less differentiated. Koch's failure to cure guinea pigs infected with anthrax by injection of mercuric salts discouraged, at least temporarily, much research in this field.

The preparation by Gelmo in 1908 of the compound para-aminobenzenesulfonamide in the course of a purely scientific research not at all concerned with problems of chemotherapy resulted, nevertheless, in a renewed interest in the search for new chemotherapeutic agents. Hörlein, Dressel and Kothé of the I. G. Farbenindustrie prepared new textile dyes from azo compounds containing sulfonamide groups. Eisenberg demonstrated the bactericidal action of certain azo compounds in vitro and employed chrysoidin for chemotherapeutic purposes. American investigators, Heidelberger and Jacobs, linked dihydrocupreine with diazo compounds obtained from aromatic amines, including para-aminobenzenesulfonamide, and found that many of the azo compounds thus formed exhibited bactericidal properties in vitro but not in vivo. A number of azo compounds were found in the laboratories of I. G. Farbenindustrie to possess bactericidal properties in vitro. Compounds containing the sulfonamide group were found to be effective against streptococcal infection in animal experiments. The chemists Klarer and Mietzsch synthesized sulfonamide containing azo compounds, and Domagk demonstrated that one of these products was effective in preventing death in mice infected with lethal doses of streptococci. Their collaboration led to the development of a product patented as "Prontosil" and somewhat later to "Prontosil Soluble." At about the same time Trefouel and his associates in France established that a number of azo dyes prepared from para-aminobenzenesulfonamide but of different physical and chemical properties had an antistreptococcal action like that of "Prontosil." They have advanced the hypothesis that all the active azo dyes, including "Prontosil," were reduced in the organism to sulfanilamide. This led them to the important discovery that the simple

1. The Call for the Pharmacopeial Convention of 1940, editorial, J. A. M. A. 112: 1969 (May 13) 1939. Physician and Pharmacopeia, *ibid.* 113: 2323 (Dec. 23) 1939.

EDITORIALS

ss compound sulfanilamide was itself highly active therapeutic agent in experimental streptococcal infection. Domagk's contribution, as Heubner points out, consists in establishing the fact that of the many substances the derivatives of sulfanilamide alone possess the property of favorably influencing streptococcal infection in the mouse, the rabbit and man.

The dramatic results obtained with sulfanilamide in many instances in a variety of streptococcal infections such as puerperal fever, meningitis, septicemia, erysipelas, scarlet fever and osteomyelitis and in gonorrhea are now common knowledge attested by an overwhelming literature. The new derivative sulfapyridine has been found to be strikingly effective in pneumococcal pneumonia. The most recent derivative, sulfathiazole, appears to be as effective against pneumococcal infection as sulfapyridine but is superior to both sulfapyridine and sulfanilamide against staphylococcal infection.

Empiricism, however, has definite limitations. It is realized that further knowledge can come only from understanding the mode of action of these compounds. This subject was editorially discussed in THE JOURNAL,¹ but for a more detailed exposition one should consult the reviews by Domagk,² by Marshall,³ and a recent one by Heubner.⁴ A genuine bactericidal effect of sulfanilamide on the cocci has not been demonstrated. The effect is rather that of arrest of growth, due possibly to disturbance of metabolism or to interference with the capsule formation of the cocci. R. L. Mayer⁵ pointed out that the frequent appearance of methemoglobin in the blood of animals and patients treated with sulfanilamide suggests the formation in the body of a product of the drug responsible for the formation of methemoglobin. He advanced the hypothesis that the bactericidal effect is due not to sulfanilamide but to the same oxidative product which oxidizes hemoglobin to methemoglobin. This theory is further developed by Shaffer,⁶ who states that the probable mode of action of sulfanilamide is that the drug provides a mechanism by which the sterilizing oxidation intensity of molecular oxygen is applied merely at its maximum to bacteria and unfortunately also, to some extent, to host cells. The present status of our knowledge is summed up by Marshall in his review of the pharmacology of sulfanilamide: "No satisfactory explanation of the mechanism of action has been found." There is, however, little doubt that the advent of sulfanilamide has initiated a true renaissance of bacterial chemotherapy.

HEPARIN

As a result of the rapidly developing information concerning this substance during recent years, heparin, from being a rather unique anticoagulant with limited laboratory application, has become a promising clinical adjunct. The isolation of a highly purified product has contributed to the advance in our knowledge of this substance. The rapidly accumulating information regarding heparin has recently been reviewed by the Scandinavian investigator Jorpes.¹

With the purified product available, organic chemists have made progress in establishing the chemical structure of the heparin molecule. Thus Charles and Todd² have studied the crystalline barium salt of heparin which was isolated from heparin preparations made from beef lung, beef liver and beef intestine. All these crystalline barium salts are similar in their composition and physiologic potency. Charles and Todd, after careful observations of the chemical behavior of heparin and on the basis of previous work, have concluded that heparin is a mucoitin sulfuric acid in which the fundamental structural unit consists of two molecules of acetyl glucosamine and two molecules of glycuronic acid. Each unit also contains five sulfuric acid groups, which impart strongly acidic properties to heparin; physiologic inactivation follows the removal of the sulfate groupings.

The provision of highly purified preparations of heparin for experimental study encouraged clinical use of this substance. Jorpes has attempted to demonstrate heparin directly in the walls of the large blood vessels by the use of toluidine blue, which stains heparin strongly metachromatically. Within a few hours after large vessels have been immersed in a dilute solution of toluidine blue there results a purple staining of the vessel walls, most marked near the lumen. The old idea that heparin is localized in the vascular system thus appears in a new form. Further study in collaboration with histologists pointed to the mast cells of Ehrlich as responsible for the metachromatic purple coloration obtained with the staining dye. Strongly suggestive proof was then obtained that the granules of the mast cells of Ehrlich consist of heparin. Moreover, a rather good correlation was found between the histologically demonstrated content of mast cells of various tissues and organs and the content of heparin which they yield. There is other supporting proof for the conclusion that the metachromatic granules in the mast cells of Ehrlich consist of heparin. These cells, by virtue of their position around the capillaries and certain of the small blood vessels, apparently have the opportunity of emptying the contents of their granules directly into the blood stream.

The isolation of relatively pure heparin³ has led to an extensive examination of the relationship of this anticoagulant to the problem of thrombosis, particularly, by Best and his collaborators at Toronto.¹ It was demon-

1. Mode of Action of Sulfanilamide, editorial, J. A. M. A. 111:2304 (Dec 17) 1938.
2. Domagk, G.: Chemotherapie der bakteriellen Infektionen, Angewandte Chemie 42: 657 (Oct. 19) 1935.
3. Marshall, E. K., Jr.: Bacterial Chemotherapy: The Pharmacology of Sulfanilamide, Physiol. Rev. 19: 240 (April) 1939.

4. Heubner, W.: Chemotherapie von Infektionskrankheiten, Klin. Wochenschr. 19: 265 (March 23), 289 (March 30) 1940.
5. Mayer, R. L.: Recherches sur le mécanisme de l'action antistreptococciques, Biol. méd. 27 (supplement): 45, 1937.
6. Shaffer, P. A.: The Mode of Action of Sulfanilamide, Science 89: 547 (June 16) 1939.

1. Jorpes, J. E.: Heparin, London, Oxford University Press, 1939.
2. Charles, A. F., and Todd, A. R.: Observations on the Structure of the Barium Salt of Heparin, Biochem. J. 34: 112 (Jan.) 1940.
3. Heparin is not generally available for clinical use.

strated that heparin greatly inhibits the formation of thrombi produced in animals by mechanical or chemical trauma to the intima of large exposed veins. The ability to produce coronary thrombosis in dogs by means of sodium ricinoleate was also greatly diminished in heparinized animals, as compared to control dogs which did not receive heparin. These successful experiments have stimulated the use of pure heparin in clinical cases of thrombosis and remarkable results have been reported at the Toronto General Hospital and in Stockholm.³ Heparin has been employed postoperatively with a high degree of success; pulmonary embolism or thrombophlebitis was not observed in instances in which these complications might ordinarily be expected. Although it is somewhat difficult to evaluate postoperative treatment for the prevention of thrombosis, more direct evidence of the value of heparin may be obtained in the treatment of an existent thrombus. Striking claims have been made in the Swedish clinics¹ for the value of heparin in the treatment of thrombosis in the main trunk of the central vein of the retina, and subsequent definite return of visual acuity has been reported. Similar efficacious results with heparin are reported in vascular surgery.¹ In recent preliminary publications in *THE JOURNAL*,⁴ suggestions have been made for the use of intravenous heparin drip, in conjunction with sulfapyridine, in the treatment of subacute bacterial endocarditis. The prevention of embolus formation greatly diminishes the nidus for growth of bacteria and vegetations.

Future clinic work may definitely establish the value of heparin in clinical thrombosis, coronary thrombosis, thrombosis of the large veins and thrombophlebitis. Heparin, like many other therapeutic substances, is the product of the combined efforts and interests of the physiologist, the biochemist and the clinician and has now passed from pure physiology to medicine by way of biochemistry.

Current Comment

THE ROCKEFELLER FOUNDATION

The review of the 1939 work of the Rockefeller Foundation presented by its president, Raymond B. Fosdick,¹ clearly illustrates the interdependence of scientific work throughout the world. Hampered as the work of this foundation now is by factors beyond its control, the report exemplifies the many ways in which expenditures trifling in comparison with armament expenditures can influence the scientific, medical and social lives of vast numbers of people. The work supported by the foundation in South America against the dreaded malaria-carrying mosquito *Anopheles gambiae*, imported from Africa, represents a campaign

the outcome of which is of importance to the entire continents of South and North America. Similarly the studies on yellow fever actively initiated by the foundation as well as numerous other public health activities and assistance in other branches of medical science are of profound importance to the public health. The foundation also gives material encouragement in the fields of natural science, the social sciences, library work, the educational activities of radio, the humanities, health and educational activities abroad, especially in China, and in its assignment of fellowships throughout the world may be serving to keep alive some spark of international cooperation which will help in reconstruction at some later date.

FOURTH OF JULY FIREWORKS INJURIES

This year the American Medical Association, as in the previous three years, will compile its annual summary of fireworks injuries resulting from the celebration of the Fourth of July. Although several states have adopted effective antifireworks legislation, the injuries in 1939 nevertheless numbered 5,560 and the deaths thirteen. These figures clearly indicate that there can be no relaxation of efforts to prevent such unnecessary accidents. Hospitals throughout the country are therefore again asked to cooperate in filling out the questionnaires which they will shortly receive to list the deaths and injuries from this source.

FOOD AND DRUG ADMINISTRATION TRANSFERRED TO FEDERAL SECURITY AGENCY

President Roosevelt's Reorganization Plan No. IV, which was commented on in a previous issue of *THE JOURNAL*,¹ becomes effective June 11. On that day, pursuant to the President's plan, the Food and Drug Administration and its functions, except those relating to the administration of the Insecticide Act of 1910 and the Naval Stores Act, will be transferred from the United States Department of Agriculture to the Federal Security Agency. Thereafter the Administration will function as a separate unit under the direction and supervision of the Federal Security Administrator. The chief of the Food and Drug Administration will be known as the Commissioner of Food and Drugs. On the same day St. Elizabeths Hospital, Freedmen's Hospital, Howard University and the Columbia Institution for the Deaf will also be transferred to that agency. For years the American Medical Association has recommended, and in its Platform it continues to advocate, the establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy. The President's Reorganization Plan No. IV and the prior transfer of the United States Public Health Service to the Federal Security Agency would seem to indicate an attempt by the President to gather together under one agency the diverse medical and health functions of the federal government.

3. Murray, Gordon: Heparin in Surgical Treatment of Blood Vessels, *Arch. Surg.* 40: 307 (Feb.) 1940. Jorpes.¹

4. Kelson, S. R., and White, F. R.: A New Method of Treatment of Subacute Bacterial Endocarditis, *J. A. M. A.* 113: 1700 (Nov. 4) 1939. Friedman, Meyer; Hamburger, W. W., and Katz, L. N.: Use of Heparin in Subacute Bacterial Endocarditis, *ibid.*, p. 1702.

1. Fosdick, R. B.: The Rockefeller Foundation, A Review for 1939, New York.

1. Reorganization Plan No. IV, editorial, *J. A. M. A.* 114: 1561 (April 20) 1940.

ORGANIZATION SECTION

VOLUNTARY HEALTH INSURANCE IN THE NETHERLANDS

MOLLEURUS COUPERUS, M.D.
CHEHALIS, WASH.

During the summer of 1939 Dr. J. J. Couperus of Rio Vista, Calif., and I visited the Netherlands and while there investigated the system of voluntary sickness insurance which is in operation there. We received hearty cooperation in the accomplishment of this task from the officials of the Association for the Advancement of Medicine in the Netherlands, the official medical organization of Holland.

Prior to 1912 the business of offering sickness insurance to the low income class of the Netherlands was entirely in the hands of private and mutual insurance companies. There was a deplorable lack of cooperation and understanding between the various groups interested in this insurance, and conditions gradually became such that the medical organization of the Netherlands decided to take the leadership in solving this important problem.

In 1912 the Association for the Advancement of Medicine succeeded in unifying sickness insurance by drawing up a plan for an acceptable health insurance policy. Private companies who adopted the suggested policy could be endorsed by the association, and in addition the association established a sickness insurance company of its own. The insurance policy as recommended to the private companies was identical with the policy of the insurance company fostered by the medical association. Since the year of its inception there have been many changes in the original plan, but in the end this plan of voluntary sickness insurance for the low income group has become an integral part of the life of the people of the Netherlands.

GOVERNMENT SEEKS CONTROL OF INSURANCE PROGRAM

In 1925, when a cabinet that was socialistically minded came into power, the government of the Netherlands made an attempt to gain control of the sickness insurance program. After investigation, however, it was found that the administrative expenses, which had been, and still are, from 8 to 10 per cent of the total receipts, would be increased about fourfold when in government hands. Consequently the plan was abandoned and the medical association continued to regulate the health insurance business. However, the government has its independent industrial accident insurance. The low income insurance plan does not treat any sickness which would fall under government industrial accident insurance.

Of the eight million population of the Netherlands, four million, or 80 per cent of the low income group, are voluntary subscribers to this health insurance plan. One and a half million of these are insured directly by the medical association, while the remaining two and a half million are insured by private companies endorsed by the medical association. There are 4,200 practicing physicians in the Netherlands, and more than 4,000 of these have voluntarily enrolled with the medical association to serve on this insurance program. When a physician decides to participate in the plan he applies to the nearest insurance office; his application is acted on within a month, and if he is a member

of the medical association he is accepted. If he is not a member, it must be established that his professional conduct is above reproach. However, at present all practicing physicians in Holland are members of the medical association, in spite of the fact that the annual dues amount to 60 guilders (about \$32). After the physician has been placed on the roster of insurance physicians he is given a list of the insured who have selected him as their family physician. The average number of patients a physician has on his list usually does not exceed 1,750. The maximum number of individual patients on any physician's list, except under very unusual circumstances, may not exceed 3,000. For those patients who are on his list, the physician receives a minimum of 3.50 guilders (\$1.85) per individual annually, payable quarterly. Physicians who live in the country are allowed 5 or 6 guilders (\$2.65 or \$3.18) a year per patient; extra mileage and the furnishing of drugs to the patient accounts for the difference in the fee. The physician has practically no report blanks to fill out concerning his patients. Specialists are paid according to a special fee schedule previously agreed on between them and the insurance company.

Any one who has an income of less than 2,100 guilders (\$1,113) a year if single or 3,000 guilders (\$1,590) if the head of a family, may enroll as a subscriber to the sickness insurance plan for the low income group. The insurance fee for a single individual is 25 cents a week. This entitles him to professional care by his family physician, the services of a specialist when ordered by the general practitioner, surgical treatment, x-ray service, laboratory work, drugs, ambulance service when required, and the use of such medical and surgical appliances as may be needed, including wheelchairs and crutches. For an additional 8 cents a week he is also insured for hospital expenses (ward accommodation) for a period of six weeks; by paying a slightly higher fee he may obtain complete hospital coverage for an indefinite period. There has been a definite tendency on the part of the insurance company to supply only the latter type of hospital insurance. The cost of complete medical and hospital insurance for a family of average size is about 90 cents a week; as soon as a child reaches the age of 16 the parents must pay a separate fee for that child. Those who have a chronic or recurrent illness before joining the insurance plan must pay a higher fee than if they were in normal health. Obstetric service is included in the plan, but there is a short waiting period before this part of the insurance becomes effective, and the insurance premium is slightly higher during the months in which the woman is pregnant. Eyeglasses are furnished only once in two years on the prescription of a physician.

The country is divided into some sixty insurance districts, corresponding quite closely to the areas of the local medical societies; each district has its own board of physicians and lay members. The insurance premium is collected each week by salaried messengers.

This insurance plan for the low income group in the Netherlands may be called a distinguished success. With only one exception, all physicians whom we ques-

tioned heartily endorsed the plan. They felt that the position of the physician was improved with regard to working conditions as well as to payment for services rendered to those in this group. They also stated that the low income group received better medical care than it had before the adoption of this plan. One physician, who was a specialist in internal medicine and not an insurance physician, stated that he believed that the number of patients allowed per physician should be smaller and that the physician's fee per patient should be larger. When we asked the patient about the insurance scheme we found undivided and enthusiastic support of the plan. At the headquarters of the Association for the Advancement of Medicine the opinion was given that the plan has worked well for all concerned, and the results of our investigation supported that opinion.

An insurance plan to cover those of larger incomes, the middle class, had been in preparation for a number of years and was ready for operation in the fall of 1939. Those whose taxable income does not exceed 4,000 guilders (\$2,120) a year for a single individual or 5,000 guilders (\$2,650) for a family may join this plan. The insured receives the services of his family physician, a maximum of ten calls a year at a specialist's office, hospitalization, drugs, ambulance service, and the use of clinical laboratories (including x-rays) but not dental care or obstetric service. However, after one year of membership, surgery necessitated by pregnancy is allowed, such as cesarean section or surgery for rupture of the uterus. For this insurance the patient pays an enrolment fee of 1 guilder (53 cents) and an annual basic contribution of 50 guilders (\$26.50) for a single male, 60 guilders (\$31.80) for a single female, 84 guilders (\$44.50) for a man and his wife, 110 guilders (\$58.30) for a family with one child, 135 guilders (\$71.55) for a family with two children and 15 guilders (\$7.95) for an additional child; these fees are payable in advance in monthly instalments. After one has joined the insurance plan there is a waiting period of three months, during which the insured must pay his own medical bills; the insurance premium paid during that period is placed in a special fund to the credit of the insured. After the waiting period is past, all

medical bills which the insured incurs are forwarded by him to the insurance office, which pays the doctor, druggist and hospital. To counteract the tendency to seek unnecessary medical service, part of the annual premium is put to the credit of the insured in a special fund. If the medical bills remain below two thirds of the annual premium, whatever amount is left of the premium will be added to the personal reserve fund of the insured. When this fund contains 100 guilders (\$53) interest is paid on it; when it reaches the figure of the annual premium the excess is deducted from the next premium. Should the insured decide to discontinue his sickness insurance policy, the money in his personal reserve fund will be returned to him by the insurance company. If, during any year, the medical bills of the insured exceed his premium as well as his reserve fund, he is expected to pay a small percentage of this excess amount. For example, should the medical bills for the year reach 300 guilders (\$159) the insured pays an extra assessment of 16.50 guilders (\$8.75) above his basic annual premium. If his medical bills should total 1,000 guilders (\$530) he must pay an extra 79.50 guilders (\$42.15). Thus the insured has a perpetual interest in keeping his medical bills at a minimum.

Under this plan of sickness insurance for the middle class the physician is paid his customary fee for private patients. The physician sends an itemized statement to the patient, who has an opportunity to check both the services rendered and the fees charged; he must forward the bill within a month to the insurance office.

The insurance company of the medical association also is planning to take over the medical care of the destitute. In the past these unfortunates have been cared for by physicians who entered the lowest bid to the city or county for the medical care of their poor. Under the new plan the city or county pays the insurance company for each patient a premium slightly less than what is paid by other members of the low income group insurance plan. For this the poor man receives complete medical care and has free choice of his physician. It is expected that the plan will please the city and county governments, the patients and the medical profession.

1037 Market Street.

NATIONAL CONFERENCE ON MEDICAL NOMENCLATURE

Held in Chicago, March 1, 1940

DR. HAVEN EMERSON, New York, in the Chair

(Concluded from page 2029)

The Classification of Tumors for Clinical Purposes

DR. BOWMAN C. CROWELL, Chicago: The present report of the committee is labeled a progress report but the committee was appointed only in January and it has not been possible to have an assembly of the members as yet. Therefore the present report of progress must be interpreted as a report by the chairman of the committee, who has as yet received help from only a part of his committee.

Neoplasms have been classified from many standpoints; etiology, clinical features, histogenesis, embryology and gross anatomy. No terminology that can be devised in this field will meet with approval of all workers in tumors, but the committee has in mind the objective of compiling a nomenclature which will best serve to correlate for statistical purposes the known clinical facts concerning tumors. The classification should be usable by clinicians, but this statement recognizes the frequent dependence of the clinical practitioner on the pathologist. Gross anatomic features of a tumor cannot serve as the only basis for classification and yet they cannot be entirely neglected. It does not

seem possible to compile a satisfactory terminology based on any one feature of tumors, and the best that can be hoped for is one that will portray as well as possible the present known facts on the subject. It is proposed to place anew before the members of the Committee on Nomenclature of Tumors a full statement of the individual problems with which we must deal and, from the responses, compile a semifinal report for the members of the committee to consider again.

It will be necessary to enter into some of the details of the task:

1. The question has been raised as to whether the nomenclature should include in the body of the book a list of the complications that arise from neoplasms. It is proposed that the principal of these complications should be listed under 800 "Structural or Functional Changes Due to Neoplasm" and should not appear except by number in the body of the book. They should appear in the index.

2. To cover rare tumors in unusual locations it is suggested that only the more common tumors be listed in the body of the

book under the individual organ and that for the rarer tumors the list from the revised etiologic classification be recommended.

3. Numerous examples of the listing of mixed neoplasms occur in the present edition. Most so-called mixed tumors are not mixed tumors in the sense that they are of teratomatous origin. This applies particularly to those tumors which may contain cartilage or bone, or a fibroma containing fat. All such tumors should be deleted. The teratomas should be retained and perhaps the term "mixed tumors" in the case of the salivary glands when the name has a clinical connotation of some importance.

4. Shall four digits sometimes be used to indicate a modification of a particular variety of tumor? For example, pigmented basal cell carcinoma of the skin. The majority of the committee believes that three digits can sufficiently describe a tumor. Such a recommendation recognizes the desirability of three digits for the use of those who employ the punch card system of tabulation and also the fact that individuals engaged in special research can amplify the system to meet their own needs.

5. Suggestions for changes have been made in the case of tumors of the nervous system. For example, it has been suggested changing capillary fibro-epithelioma to craniopharyngioma. There is considerable objection to giving topographic names to tumors.

6. The committee has been asked to consider the use of the term "syncytial endometritis." I mention this because it involves certain policies. Such a condition is inflammatory, but a true tumor in the form of syncytioma may arise. This tumor should be recognized under 798-889. If it is purely inflammatory it may appear as 794-614 Retention of Placental Fragment.

7. The term "transitional cell carcinoma" appears in the body of the book in previous editions. If this term is to be retained, it should be applied only to tumors arising in areas where transitional cells normally occur, which is not the case at the present time. Many, if not the majority, of the so-called transitional carcinomas are modified squamous cell tumors and should be so listed.

8. In reference to the subject of pigmented tumors it will be profitable to avoid discussion of histogenesis and be content with the term "malignant melanoma," which cannot be a subject of controversy.

9. There is some lack of consistency in the present edition in dealing with neoplasms arising from the fetal anlage. It is proposed that the list under section C on page 87 be enlarged to include the known instances of this entity. They could well be placed under 87x.

10. It has been interesting to note the unanimity of members of the committee to the suggestion that the term "hypernephroma" be deleted. It has served as a cloak for much ignorance. When these tumors arise in the kidneys they should be classified as carcinoma of the kidney and, when in the adrenal, they should be classified as adenomas or adenocarcinomas of the adrenal cortex.

11. Glomus tumors should be recognized and given an appropriate place in the etiologic classification. Any alleged relation of this tumor to Schimmelbusch's disease should be completely ignored.

12. It has been suggested that adenocarcinoid of stomach and intestine should be recognized. A final recommendation as to the disposition of this entity is reserved for the future.

13. Endothelioma is a term which has served as a catchall for many tumors the nature of which could not be accurately determined. A recommendation will be made later, but the term should be retained in the etiologic classification and referred to under a certain group of organs.

14. With regard to muscle tumors several members of the committee feel that introduction of the term "myoblastoma" would be confusing and is a reversion to the time when every mesodermal tumor was supposed to have arisen from a specific cell. Most of these tumors are leiomyomas. The fibrous element in them is apparently not neoplastic. We suggest the retention of the term "myoma" with the subheadings of leiomyoma and rhabdomyoma when their origin from smooth or striated muscle can be determined.

The personnel of the committee is Dr. A. C. Broders, Rochester, Minn.; Dr. C. L. Connor, San Francisco; Dr. Max Cutler,

Chicago; Dr. C. F. Geschickter, Baltimore; Dr. Ralph E. Kendall, Hartford, Conn.; Dr. L. A. Pomeroy, Cleveland; Dr. Mont Reid, Cincinnati; Dr. Walter Schiller, Chicago; Dr. Shields Warren, Boston; Dr. John E. Wirth, Baltimore, and Dr. Bowman C. Crowell, Chicago, chairman.

DISCUSSION

CHAIRMAN EMERSON: Is this, in the main, the way you wish to have the revision undertaken, by specialist committees nationally representative, to take up each of the moot problems within individual specialties? This is a sample of the kind of thing that is in process and that must be done over the ensuing months.

DR. GEORGE BAEHR, New York: The plan for this Committee on Tumors and for other committees seems perfectly feasible. It would seem wise to have representation of national organizations designated to work with the committee. Although the national society should be sufficiently represented, there should be some authority given to the special committee to make recommendations to the central group that assists in the final preparation of the revised edition.

DR. MORRIS FISHBURN, Chicago: From the point of view of getting the job done, and getting it done with the utmost usefulness at the end, there are two points that should be kept in mind: First, that it is hard to get people to do this kind of work. People here represent an especially interested group, but the number of men sufficiently interested to give largely of their time and of their effort is not so great as to provide a wide latitude of choice. I agree with the suggestion of Dr. Baehr that it will not be possible to organize committees on a strictly representative basis, including all national organizations, and then to expect appointees from those committees to carry back the discussions to the organizations. That method would carry on the work interminably and we would never get anything done. The second point is that it is of the utmost importance that we approach this with the philosophy again in mind that we are not going to make all the changes that we could make. We know that medicine advances rather rapidly and that specialists frequently have concepts regarding the uses of such material which are far beyond the practical application of those concepts by the vast majority of hospital record librarians and clinicians in hospitals that will use the Standard Nomenclature. It is quite possible to take up any one of these classifications and make innumerable changes, just because a change is possible. On the other hand, as Mrs. Walker pointed out, it is rather important not to change too rapidly, not to change before it is certain that the change is one which will stand, so that one will not have to be constantly shifting the code numbers and the use of the book.

AFTERNOON SESSION

CHAIRMAN EMERSON: The four departments of the government have not found it practicable to use the Standard Nomenclature. We know the difficulties and limitations of material they handle in their respective institutions, but an important gesture that we should look forward to is an agreement among the federal departments either to accept or to improve what is acceptable generally to the institutions for the sick elsewhere in the country. Each one of these departments deals with the other department's patients at one time or another, and the interchange of cards and records causes duplication and confusion which might be avoided if this Standard Nomenclature were used by all the federal departments. I hope the representatives of the four federal departments here will see if they can't come to an agreement, so we can deal with them as a unit instead of four different hierarchies of medical practice.

Progress Report on Revision of the Standard Classified Nomenclature of Disease

DR. EDWIN P. JORDAN, Chicago: We have received in this office a large number of letters from record librarians, physicians, and hospitals and other groups calling attention to specific omissions or mistakes in the Standard Nomenclature, criticizing the Standard Nomenclature in certain respects and making suggestions. For the most part the suggestions have been divided much as the book has been divided, into the special sections in which they properly belong. Some of them are matters of general editorial policy. The mechanism of action has been to

place these suggestions in the hands of individuals who had previously been interested in the Nomenclature, or other individuals or delegates of special societies who were especially interested in classification in their respective fields. After referral, we received comments as to whether changes should be made, additions made, or deletions. There has been much more pressure for additions than there has been for deletions. At present this revision is far advanced. Practically every section has already been subjected to careful examination both in this office and by specialists, and most of the proposed additions have been either rejected or accepted. There have been changes made where indicated, and a few deletions. We should at this time recommend some mechanism for approving or disapproving the specific sections of the Nomenclature. The revision of each section but two has been practically completed, so that we have made the changes on the particular pages to which they apply.

It is believed that there are many places in the Nomenclature which can be simplified and that some of the requests for additions should be resisted, but that nevertheless the Nomenclature can be complete from the standpoint of classification. An important question is How often will it be necessary to revise the Standard Nomenclature? What is the feeling of the conference? Related to this is the question whether it would be possible to develop supplements to go out to the purchasers of the Standard Nomenclature at intervals of an unspecified number of years rather than such frequent complete revisions of the Standard Nomenclature.

The whole question of the formation and mechanism of action of special committees might be discussed at the same time. It is almost certainly advisable that there be some kind of permanent editorial committee to discuss or to consider questions of editorial policy arising in the intervals between the national conferences on medical nomenclature. Other committees are probably indicated. The approval of the work of the special committees or special sections of the Nomenclature is rather important. Is it going to be necessary to require or to obtain the approval of national specialists' societies on particular sections of the book? The mechanism of doing so would be awkward. There is a delay between the time when revision is complete and the time when it would come before an annual meeting of a large specialist society. The formal action of the society would ordinarily add little to the book itself, since work of this kind is generally done by one or two individuals in each specialty, anyway.

DISCUSSION

DR. THOMAS R. PONTON, Chicago: I think the Nomenclature should be revised at least every three years. There is a constant change in the terminology of medicine, and if we are going to keep up to date we must make provision for revision. I see no reason why we should not adopt a loose-leaf system of publication. The idea of a pamphlet revision is impracticable. With the Alphabetical Nomenclature, at one time revision became necessary after publication of our first bound volume. We did not want to put the people in the hospitals to the expense of buying an entirely new Nomenclature, so we published a pamphlet revision. We even went to the trouble of publishing that on a paper that could be cut and the revisions pasted in as marginal notes on the original edition. In my visits around hospitals I never saw one of those used. That revision was not worth the time and expense of getting it out. The loose-leaf, however, I believe practical. We can then, at intervals of three years, publish supplementary pages which will replace those already done. In that way, without the hospitals going to the expense of buying an entirely new volume, they will be up to date. It is surprising to find hospitals today using some of the old nomenclatures. I ran across a copy of my original Nomenclature published in 1927, in visiting a hospital two years ago. The statement was made that they didn't feel justified in buying a new Nomenclature to put on the several floors of the hospital. That is the reason I believe in the loose-leaf idea.

DR. GEORGE BAEHR, New York: The question of a loose-leaf volume was considered when the previous editions were published. A preliminary trial printing of a Nomenclature was made in 1932, and after about a year when many of the omissions were picked up the first official edition appeared, in 1933.

However, after hospitals began to use it a great many more omissions and inaccuracies were discovered, and it became necessary to publish the second—this is the last edition—in January 1935. So it is now more than five years since this edition was printed. From the fact that our attention is being called to fewer serious omissions, we can safely put off publication of the new edition for probably ten years, provided, the new information that may arise, or new designations in disease that may be decided on, be called to the attention of hospitals that have subscribed, in some way, either by a supplementary pamphlet issued every few years or by some letter form that can be used in the record room and in the wards for making proper corrections in the book. I am in favor of a ten year revision, with supplementary information distributed when necessary during the ten year period.

DR. MORRIS FISHBEN, Chicago: We in the Association office will be largely responsible for the entire printing task and the upkeep and maintenance of the organization necessary to carry this work out. The matter of a loose-leaf system is almost out of the question because of the difficulty of developing such a work, the increased cost and the cost of maintenance. While hospitals might object to buying a new edition, the initial cost and maintenance on loose-leaf is considerably greater than the publication of a single volume. The frequency of revisions must be intimately bound by the mechanism by which the revision is to be brought about. We should first address ourselves to the question as to who is to undertake the primary responsibility for the publication. One of the first steps is to select some one who will act as chief editor of the publication and carry the final responsibility. The Board of Trustees of the Association, at the suggestion of the General Manager and the Editor, has selected Dr. Jordan to take that responsibility. The next question relates to making the final decisions in each field. Obviously we must have committees. These committees cannot meet every month or even every year to go over the entire question of changes in nomenclature and will have to consider by correspondence the suggestions that are made. Then, as each member gives his opinion, it will probably be up to the chairman of the committee to make the final decision as to the necessary revisions, based, of course, on the information sent to him by the members of his committee as to what changes are to be made. His committee, having made that decision, will forward its corrections to Dr. Jordan, who would then arrange for proper incorporation of those suggestions into the volume. Should he find it undesirable to incorporate the changes voted by that committee, he would have to refer the matter back to the committee for further consideration. It is the desire of the American Medical Association to have this Nomenclature a cooperative effort in which all the learned societies and all those having responsibility in this field will indulge, and that means there must be conferences. The Board of Trustees decided that a conference about every five years, of this type, would serve to crystallize the points of view of those most interested. In other words, each five years a conference of this type might be held, the opinions that had developed in the meantime crystallized, committees to carry on the work until the next conference established, and a revision of the book brought out. That would not necessarily mean that each hospital would have to buy all new books every five years. It should be possible to develop in small pamphlet form the essential changes, so that those hospitals which did not care to invest in a new volume could buy the pamphlet containing the fundamental changes that had been made in the five year period. That is a compromise between the issuing of annual or monthly, semiannual or biennial supplements and the loose-leaf system. I am trying to be practical in keeping the cost of the work down to a minimum in order to get the widest possible use. If we would adopt a procedure whereby we would issue the book at about five year intervals we could keep it at the present relatively low cost. Then the hospitals could decide at each five year period whether or not to invest in a new edition or to invest in a book of revisions, for which the record librarian would have the responsibility.

CHAIRMAN EMERSON: The policy which we found indispensable in the years we were carrying it on in New York was that there had to be an executive committee of the National Conference that met several times a year to confer with the editor on

matters of general policies which were presented to us by the conflicting interests of the specialty groups we had asked to advise us. We may find a similar method desirable in addition to the special subcommittees. The specialist subcommittees should have indigenous authority, as it were, to express preference for or against inclusions of changes.

DR. MONTAGUE L. BOYD, Atlanta, Ga.: Is it essential that a definite time be set for revision?

CHAIRMAN EMERSON: Every ten years we must look forward to the decennial revision of the International List of Causes of Death. That is a thing fixed, after sixty years of practice among the nations. We are dealing with matters that change much more quickly and that are subject to clinical fashions and the influence of university teachers and hospital leaders. If we could commit ourselves now to an edition in 1945, the one that comes out in 1950 will be the one that will immediately follow or be almost coincident with the international revision of that year, which will, in fact, take place in the year 1948.

DR. BOWMAN C. CROWELL, Chicago: I would like to move that this conference go on record as recommending to the American Medical Association a consideration of a quinquennial revision of the work.

DR. EDWIN P. JORDAN, Chicago: Before passing the motion I would like to hear from the record librarians.

MRS. STELLA FORD WALKER, Chicago: The record librarians are not the ones to fix a policy of that sort. I have used the Standard Nomenclature only three years and I have had few requests in that time for questions of extension of the code that we couldn't take care of without upsetting any of the other questions. There have been occasions when the specialties have wanted additional items in their sections, but we found ways to take care of it. A five year revision is all right, as far as my experience goes.

MISS DOROTHY L. KURTZ, New York: A five year revision would be what I would suggest, from a record room standpoint.

MISS LILLIAN H. ERICKSON, Chicago (American Association of Medical Record Librarians): I think the five year period would take care of the medical record librarians. The record librarians would be happy to be represented on the Advisory Board and possibly bring forward some of their problems, as far as usage of the Standard Nomenclature is concerned.

DR. NEIL A. DAYTON, Boston: We already had the old classification on our statistical cards in 1933, and we had to change over to the new nomenclature at that time. It cost us in our department about \$600 to change over the cards for our resident population. If that were happening any oftener than every five years, it would be quite a little expense. I think five years is the ideal period.

COL. CHARLES G. SOUDER, Washington, D. C. (United States Army): Our nomenclature in the Army, which is quite a restricted one, has not been materially revised since 1917. If you want to use statistical material for purposes of comparison, I should think the more stable the Nomenclature could be and the less frequently revised, the better it would be. I would suggest a revision coincident with that of the International List of Causes of Death, not oftener than every ten years. There will be, of course, a great many changes, but will it not be true that those will be changes in diseases of infrequent occurrence, so that the necessity for any elaborate change should not be great? Medical knowledge is not going to increase at that rate. Medical fads and fashions will change, but I don't think they should be given undue attention.

CHAIRMAN EMERSON: Isn't it true that the list used in the Army is much more restricted in number, and isn't it inevitable that a list that decides to restrict itself in the beginning is likely to have less demand for change than one which is as comprehensive as the one we have attempted?

COLONEL SOUDER: Our list of diagnostic terms is limited to 1,000. If the physician wants to call tonsillitis something else, we tell him he can't do it.

CHAIRMAN EMERSON: And the Public Health Service Nomenclature is 10,000.

CAPT. WILLIAM E. EATON, Washington, D. C. (United States Navy): The current Nomenclature of the Navy, which was just

issued in our new manual for 1939, contains 2,715 diagnoses, which are classified under various groupings, there being twenty-seven classes. This has about the same categories as the Army list. We take into the hospital the Navy and Marine Corps men, the Army men from Fort Sheridan and, when necessary, elsewhere, the Civilian Conservation Corps men up to the number of sixty, the WPA workers and some veterans. Our diagnoses are satisfactory to all these agencies. We have the Veterans Bureau list which we use also. The Navy is a highly specialized service. We find conditions that may not occur in civil practice. We have to fit the diagnosis to the condition. From time to time we find additional diagnoses which we have to put in to have something to use in connection with some of the features of naval affairs. I have tabulated things under injuries and under the various causes of violence. In aeronautics we have collisions in full flight with other aircraft, collisions in full flight with objects other than aircraft—such as running into a boat on the water. We have to conform to this restricted list. Reports go into the bureau and are put on the tabulating machines. We can tabulate diagnoses and obtain statistical data by just asking at the door of the room where it is done. We have a stated number of operations which take up about four pages of our pamphlet, in English, in Latin and in anglicized Latin, which fulfil our needs. If any interested individual would show the Surgeon General of the Navy a need to add to or change, I think it could be done with cooperation.

DR. HOWARD FOX, New York: There are two questions: first, what we want, and, second, will the American Medical Association finance a revision every five years? I think five years is an ideal time for such an extensive book.

CHAIRMAN EMERSON: It is curious that a man in the Army can have only 1,000 sicknesses, and when he is in the Veterans Bureau he can have 15,000, and when he comes into the clinical care of clinicians in civil practice 1,000 isn't nearly enough to specify the kinds of things he can have. It isn't a question of recommending to the Navy that they have the same number of diagnoses that we have, but to suggest the desirability in comparability of professional accuracy and completeness of description of both etiology and location. Those are things which we believe the federal medical services might with advantage study, to see how nearly they can come up to the degree of precision and completeness which has been found desirable in systems with a great many more hospital beds, even, than those that are represented in the federal service. The motion is that there should be a revision every five years and that we ask the American Medical Association to commit itself, so far as possible, to that policy. Those in favor of this policy please say "aye"; opposed, "no." I hear no "noes," and the resolution is passed. The other matter is, Shall we suggest the creation, under the editorial policy of the American Medical Association, of a general advisory committee on editorial policy to act, as it were, as an executive committee in the interval between the quinquennial conferences?

DR. FISHBEIN: If this conference were to recommend to the Board of Trustees of the Association a suggested editorial board the Board of Trustees would probably accept the suggestion. I move that there be developed an advisory editorial board of six to cooperate with Dr. Jordan, as managing editor of this publication, with a view to serving during this next five year period as an advisory editorial board for the publication of the Standard Nomenclature, and that it be left to the chairman of the conference, with the executive committee that was established in the original conference, to nominate to the Board of Trustees of the Association the members of the advisory board of six.

[The motion was seconded and carried.]

CHAIRMAN EMERSON: The appointment of the subcommittees was proposed in the same manner, or would those subcommittees be appointed by the editorial committee?

DR. FISHBEIN: That is for the conference to decide.

CHAIRMAN EMERSON: We should leave the appointment of the special subcommittees, as may be needed, to the editorial committee.

DR. DUNN: Since I have been in this conference I have heard of at least two lists I didn't know about, one of diseases and one of operations. I think Dr. Jordan would do a good service if

ORGANIZATION SECTION

he could list the terminologies that are being used so that all of us could write and get them and see what they are.

DR. BAEHR: Miss Kurtz has made a suggestion concerning necessary abbreviation of the Standard Nomenclature which must be taken seriously because of her large experience and her deep interest in this subject. However, what abbreviations are made cannot do violence to the basic plan or require any radical changes in the record room filing. Otherwise, in attempting to solve the criticisms and objections of one group, one will lay oneself open to a tremendous wave of criticism from all the hospitals that will be inconvenienced. However, the volume can be reduced in size. Also in some parts of the book some of the headings can be put in boldface type and can be employed by some of the special services which do not want to keep a record of the refinements in the categories under the main headings. I refer, for example, to a condition like obesity, which diagnosis will be adequate for a surgeon but might not be adequate for an internist, who might want to group his cases of obesity as due to overeating, to hypothyroidism and to other causes. Similarly, under tetany somebody might be quite satisfied to put down the term "tetany" and let it go at that. It isn't a complete diagnosis, but no one can force a clinician or a specialist to go into refinements of diagnosis if he is incapable of doing it or if he doesn't want to do it. However, under tetany one will find that there are six or seven types and different types of mechanism, and for those who wish to record the different varieties the volume should permit that and yet, at the same time, allow flexibility. I think that this can be accomplished without doing any violence to the basic philosophy underlying the work.

MISS KURTZ: The main point I wanted to bring out this morning has been rather obscured by what was merely a suggestion. The abbreviated list was the suggestion, and not the main point. What we wanted to make sure this conference would consider was the difficulty that one group of specialists found in dealing with terms that belonged to another group. We wanted to make sure that some provision was made by this conference to look into that matter, and not merely treat it, as has rather been the habit heretofore, as just a lazy man's excuse. We think it has got beyond that point.

DR. WARREN P. MORRILL, Chicago (American Hospital Association): If Columbia-Presbyterian, with its staff, finds difficulty, how much is it multiplied in the general run of non-teaching hospitals? I suggest that there be in the actual format this distinction between obligatory and voluntary terminology; that is, "obesity," which may be sufficient, would be an obligatory term perhaps printed in boldface type, with the subdivisions under it. The seven migraines could be left for those who are interested in the distinction between the seven different migraines, while the average man would be obliged to go as far as saying "migraine" but no further.

CHAIRMAN EMERSON: I must reinforce, as a member of the faculty of P. and S. the insistence of my colleagues that we make some move which will permit either a distinction between obligatory and facultative, so that people who wish a simple skeletal scheme of terms can use it without damaging the complete list, which we hope always to have published in toto. There doesn't seem to be any technical reason why that can't be done, and when the committee is ready to consider it I shall be glad to submit from technicians with whom I have been in conference a possible mechanism by which this can be done.

DR. FISHER: It would be possible, after we have had some experience getting out this new revision, to prepare as a simple pamphlet a list of the main headings and subheadings with the numbers, for the use of those smaller institutions which cannot go much beyond that, but such an activity is directly opposed to progress in educating physicians to endeavor to make really descriptive, scientific diagnoses. I think the general effect for the advancement of medicine is vastly improved by endeavoring to hold to the list as now constituted and not to offer a short-cut simply because that is cheaper and easier.

DR. BURRILL B. CROHN, New York: The diseases of the alimentary tract constitute sixty-nine pages of this book, or practically 15 to 16 per cent of all the terms. Although I sat with the original committee, I am rather annoyed to see how often the same term springs up: achlorhydria, achylia gastrica, hypo-

chlorhydria and acidity, as well as paralytic ileus, and any other number of names. I think, that with authority, I could cut down this one section alone and condense the whole thing into sensible terms and cut the expense of the publication, but I do not think revision of the book should go longer than five years. Five years ago there was no flexible gastroscop used in this country. Today there is a huge terminology and literature growing up on the subject of gastritis, for which there is no provision in the book. If you wait ten years, the subject would probably be obsolete and completely changed before one had a chance to present it. I favor this movement to cut down the size of the book, to simplify the items and stop the duplication of terms. As far as any specialty is concerned, we have no trouble at all with the national society. I have full authority to act or make changes such as I have wished to. I have submitted my report to them. I think a simple committee, working with the approval of the national society, would be a perfect mechanism for the revision of the book.

CHAIRMAN EMERSON: The idea has been suggested that while we continue in the book all legitimate subdivisions of site and etiology which add to the precision and completeness of diagnoses, we make it possible, by some particular selection of printing or order or line of the presentation, to use the frequently employed diagnoses without any necessity in all instances of using the ultimate refinement. If a hospital wants to limit to a certain number instead of going to an ultimate subdivision, it should have the privilege of doing it, but it should deny a methodical way. We have received practically a self-denying statement from the gastro-enterologist. We may find other specialties will be willing to limit the number of diseases which they recommend that can really be accurately distinguished one from another. That is the first kind of concentration or elimination. It has been suggested that this matter be referred to the editorial advisory committee. Unless I hear objection, I will consider that this matter of abbreviating or abridging or concentrating the list, in any way consistent with keeping the present plan of thoroughness, shall be referred to the editorial advisory committee.

[The motion was carried.]

DR. JORDAN: We have been subjected to many letters and pressures of various sorts to add to the Standard Classified Nomenclature of Disease special diagnostic categories for the classification of dental diseases, pathologic specimens, x-rays, electrocardiograms and others. I feel that this should not be done, that it does not come within the scope of the Standard Nomenclature to include such things, and that there would be no limit to what we would be supposed to add under those circumstances. There are some eight or ten suspected diagnoses in the Standard Nomenclature now. I believe they should be removed. I don't believe the Standard Nomenclature should differentiate between a diagnosis and a suspected diagnosis. If any one wishes to indicate that something is suspected, he can add a Y at the end of the classification. Dr. Baehr referred to one method of simplification which seems practicable and will materially decrease the size of the book. That is the question of listing, as a general diagnosis, certain disorders which may appear in almost every region or organ. An abscess, for example, may appear almost anywhere, and rather than listing it under each organ in which it might appear, I believe we can have a general diagnosis of abscess, with permission given to the physician or the record librarian to fill in the location from the topographic numbers in the book. That would apply to such conditions as abscess, endometriosis, leukoplakia, anthrax, filariasis and many others. They might also be listed and should be listed under the sites where they appear most commonly. Dr. Crowell mentioned the question regarding the listing of complications of neoplasms. We have in the book a number of complications: "perforation of the stomach due to contiguous neoplasm"; "hemorrhage of intestine due to contiguous neoplasm"; "hemorrhage of intestine due to contiguous neoplasm." I believe they should all be entirely removed from the book. The disease is the neoplasm; the rest is a complication. We must realize that some things have to be left to the patient's chart itself. Not every detail of a clinical examination can be placed in the diagnosis. The editorial matter which I wish to bring to your attention is with regard to the use of eight and nine digit diagnoses. It is possible to place such lengthy diag-

noses on punch cards and the question has arisen as to the possibility of making all the diagnoses in the book ten digit diagnoses. On the whole, I think it would be advisable to keep the number of digits as few as possible, but we have received many letters on that subject.

MR. RICHARD H. DYER, Washington, D. C. (International Business Machines Corporation): I was invited to this conference as a representative of a tabulating machine corporation, but I speak in the interest of Dr. Bullock of the Los Angeles County Hospital. The subject he brings up is this, that the number of positions in the morbidity code should be, if possible, reduced to the smallest number. If you will look at the code Mrs. Walker has, you will notice that it has twelve possible positions, and that would indicate, on the basis of the decimal system, that there would be one trillion possible types of morbidity. Using that as a possible index, conceivably there could be some reduction in the number of digits which are used to express any type of morbidity. Another point Dr. Bullock would like to make is this: Since there are probably not one trillion types of morbidity, it might be possible to go to a ten digit code. In other words, our dollars and cents are expressed in ten digits, from 0 to 9. The Logie code is expressed in twelve positions at this time, X and Y. Since scientific agencies throughout the world are using the ten digit system, wouldn't it be possible to revise the code and put it on a decimal basis rather than use a duodecimal or twelve position code? That would simplify mechanical tabulation and make possible certain correlations which are not practical on a machine basis now. Dr. Bullock would also like to see the code established as a fixed unit. In other words, instead of having 3 and decimals added up to a total of six positions, would it be possible to reduce that to five and have it expressed as a five digit code in the Nomenclature opposite the type of morbidity? As a representative of a company in the tabulating machine business, I wish to say that our engineering forces are at work developing equipment which will handle all these problems which hospitals have in connection with their morbidity tabulations.

DR. DUNN: Wouldn't it be advisable to take all the record librarians who are in hospitals that have been actually using this code and solicit from them a complete description of what difficulties they have had in adapting it, the feelings of their staff, and all of the suggestions that must have been cleared largely through them? That would get the practical problems which have been coming up here before the committee.

DR. JORDAN: We have had requests to include in the Standard Nomenclature dental terminologies, terminologies for the classification of pathologic specimens, electrocardiograms and x-rays.

DR. FOX: I move that the requests be disapproved.

DR. FISHBEIN: On the ground that it is not feasible, with the present setup, to take up such extra sections as are requested. It is not expedient at the present time to undertake them.

Problems of Terminology in the Field of Physical Medicine

DR. FRANK H. KRUSEN, Rochester, Minn.: I appear as a representative of the Council on Physical Therapy and as chairman of its Committee on Nomenclature. We are interested not in statistics but in preparing a workable classification of therapeutic procedures in the field of physical medicine. Our problem is to obtain a list of definitions. We have tried getting the written opinions of a large group of specialists, selected because of their locations in leading hospitals and institutions. The plan was not particularly satisfactory. We then thought that probably it would be better to pick out a small committee, with a skilled physicist, because our problem is physical medicine, a skilled lexicographer, and a specialist in the field to work out a set of definitions.

We are confused by such problems as terminology for a procedure such as that in which an electrical constant current is used to introduce the ions of certain drugs into the superficial tissues. For years, physicians have called this procedure "ionization," which is incorrect. Then some purist suggested the term "iontophoresis." That didn't seem satisfactory, and somebody said the term should be "electrophoresis." Now physicists say that we should call this procedure "common ion transfer."

We have the problem of trade names: hypothermy, from a trade device "Hypotherm"; inductothermy, from a trade name "Inductotherm"; endothermy, from a trade name "Endotherm." Shall they be included in a list of definitions or shall they be excluded?

To the uninitiated observer, this conference seems to have been confusing two closely related problems, nomenclature and statistics; terminology, per se, and grouping of terms; if those two could be separated, confusion could be avoided.

Our committee is trying to prepare for clinical purposes an acceptable list of definitions in the field of physical medicine.

DISCUSSION

CHAIRMAN EMERSON: Dr. Krusen gave a list of different terms that stem entirely from therapy, and we can no more list therapeutic procedures in this field or drugs than we could in any other special field of application, but so far as your request concerns diagnostic definition we ought to be able to meet your needs.

DR. FRANK H. KRUSEN, Rochester, Minn.: We are not asking that a list of definitions be incorporated into the Standard Nomenclature. We are merely preparing, as part of our Council's work, a revision of a list already published by that Council. We ask only that this be considered by those of the conference who have experience in this particular field of nomenclature. We are interested in nomenclature, not in statistics, as far as this particular committee is concerned. We are merely asking for advice.

Nomenclature and Classification of Allergic Disorders

DR. SAMUEL M. FEINBERG, Chicago: The difficulties in attempts to delineate and classify disease conditions and scientific terms arise from several sources: 1. The long-continued usage of terms, usually of lay variety, has given an almost indelible stamp to some diseases, even though the appellations create entirely erroneous impressions of the nature of the conditions. 2. The tendency to combine stems from words in Greek and Latin to produce combinations has resulted in hybrid products which are neither scientific nor clear. Anglo-Saxon and Arabic origins also have complicated our etymology. 3. The honor reflected from scientific discoveries has given rise to eponyms, which are neither scientific nor descriptive. 4. Changing concepts of the nature of pathologic conditions result in changing and multiple terms.

I will attempt to throw light on the classification and terminology of the clinical manifestations of allergy. It would be well to define briefly the most important fundamental types of hypersensitiveness. Hypersensitiveness is an increased reactivity to a specific substance which, in normal subjects, produces little or no reaction. Allergy is the usually accepted term for all types of human hypersensitiveness. It may be subdivided into several components. Atopy is a type of hypersensitiveness peculiar to man, subject to hereditary influence, presenting the characteristic specific immediate whealing type of reaction, having the circulating antibody reagin and manifesting certain peculiar clinical syndromes such as asthma and hay fever. Bacterial allergy (tuberculin type) is not subject to hereditary influence, is normally dependent on previous infection to the specific organism, is characterized by the delayed type of infiltrative reaction and does not have any demonstrable circulating antibodies. Contact allergy is a type of hypersensitiveness almost exclusively confined to the epidermis, caused usually by a nonprotein allergen, giving no positive whealing type of reaction but rather a delayed eczematous reaction to prolonged contact with the allergen, and displaying no circulating antibodies. Just because a certain manifestation (asthma, for example) is classed as an allergic disease does not necessarily imply that the inference is made that allergy is the sole cause for every instance of such affliction. The word asthma originates from the Greek, meaning "panting." The majority of authors employ the term "bronchial asthma" to denote the common atopic variety, such as asthma to pollen, foods or animal danders. They differentiate bronchial asthma from asthma due to left ventricular failure (cardiac asthma) and from asthma due to bronchitis. The cardiac asthma is identical in mechanism to the atopic variety.

being spasmodic, presenting the same pathologic and physiologic manifestations in the bronchii and relieved by the same drugs, such as epinephrine. Hence cardiac asthma is bronchial asthma. It is confusing, therefore, to use the term bronchial asthma as it is commonly used. It is proposed that the general term asthma be employed for all such types of spasmodic breathing. If the specific allergic etiologic factor has been located, the condition should be designated allergic asthma.

What shall we name the syndrome of watery rhinorrhea, sneezing and spasmodic blocking? Shall it be hay fever, allergic rhinitis, vasomotor rhinitis, perennial rhinitis, rhinitis vasomotoria, hyperesthetic rhinitis or intumescent rhinitis? Shall we then call this affliction "allergic rhinitis"? Authors of textbooks on allergy have arbitrarily regarded this designation suitable. However, in the present state of knowledge we have no right to assume that other than allergic causes are not instrumental in producing these symptoms. Vasomotor rhinitis is not a good name because it has the same inherent inconsistencies as the term "bronchial asthma." Hyperesthetic rhinitis, we believe, is the most suitable term for this condition, since it describes the essential features of the disease, the sensibility to stimuli. If the nasal symptoms are due to allergic causes then the designation allergic rhinitis is justifiable. Of the latter the most common varieties are the seasonal and the nonseasonal. "Hay fever" has been the most common designation for the seasonal form. This term is a misnomer. The disease is not due to hay nor is it accompanied by fever. It were better to refer to this condition in general as seasonal rhinitis or seasonal allergic rhinitis. If the symptoms are due to pollen, then we may refer to it as pollen rhinitis or pollinosis. The nonseasonal form may be designated as perennial allergic rhinitis.

CUTANEOUS MANIFESTATIONS

Urticaria is an old established appellation. The origin of the term is derived from the genus of plant *Urtica*, which has the general property of producing itching swellings on the skin of every one by contact with it. There is no serious objection to this term. Angioneurotic edema is interchangeable often with urticaria and not infrequently the two occur in the same individual in the same attack. Among the definitely known causes of this manifestation is allergy. The objection to the eponymic term Quincke's disease is self evident. The name angioneurotic edema is objectionable because it conveys the impression of a neurosis, which steers away from the truth and tends to deaden the stimulus for future investigation. Probably the most suitable designation would be acute circumscribed edema or perhaps giant urticaria.

Perhaps in no other phase in medical nomenclature is there as much confusion as in the field of "eczema." "Eczema" has been the waste basket of misunderstood, unidentified forms of inflammatory lesions of the skin. In allergy we are concerned principally with two types of so-called eczema. One type is definitely associated with other diseases of atopy, such as asthma and hay fever, in the individual, the family or both. This dermatosis has been called neurodermatitis, generalized neurodermite, neurodermite, flexural eczema, lichen chronicus simplex disseminatus and just eczema. All of these are objectionable on the grounds either that they stamp this dermatosis with a neurogenic character or that the name is not accurately descriptive. There can be no question now of the true atopic nature of this manifestation and since the lesions are truly of the nature of a dermatitis we may as well combine the two ideas and agree with Sulzberger that the most fitting designation for it is atopic dermatitis. The second important variety of allergic dermatitis is one in which the allergy is apparently confined to the epidermis and the inflammation is produced by direct contact. European dermatologists have correctly referred to it for years as "eczema." The name dermatitis is permissible because an eczema is still a dermatitis. However, the contact feature should be expressed in the name, such as contact eczema or contact dermatitis.

For the one-sided familial headache which is so frequently allergic, migraine is an excellent term. Many ophthalmologists believe in the allergic nature of vernal conjunctivitis. There is sufficient evidence to indicate that some of these cases are

allergic. The term vernal catarrh, I believe, should be dropped in favor of the former name, since "catarrh" has been another pigeonhole in which an attempt is made to hide our ignorance.

Classification of Allergic Conditions

DR. J. FREDERICK PAINTON, Buffalo: Like every new conception allergy is being used as an explanation for a great variety of conditions that hitherto has been unexplained. Allergy plays an important role in many diseases but it should not be used as a scapegoat for every obscure disease process. A review of the literature during the past ten years failed to reveal any effort toward the establishment of a basic classification in allergy. In attempting to formulate any sort of recording system of allergy, we must endeavor to establish this classification on both a topographic or regional basis and an etiologic relationship. Every new fiber, every new cosmetic, every new drug is a potential cause of allergy. When we consider the numberless known allergens, it is apparent that there is no advantage in adopting individual allergens as a basis for classification. It might be practical to base this etiology on the mode of production, as by ingestion, inhalation, injection and contact. It also seems necessary to indicate whether the allergy is seasonal or whether it occurs throughout the entire year or perennially. Allergy in the nose is properly called allergic rhinitis. It would be classified under disease of the nose or nasal mucosa. The term hay fever should be abandoned. Allergists feel that the most acceptable name is pollinosis. Thus under the seasonal forms of allergic rhinitis we would place the term pollinosis. To classify pollinosis further as to the exact season is essential because some cases occur in the spring, some in the early summer and some in the fall. The perennial variety is frequently designated as hyperesthetic rhinitis, vasomotor rhinitis or perennial hay fever; obviously the latter term should be avoided. We would classify the condition as allergic rhinitis, perennial, and specify whether it is of the inhalant or ingestant type. If the allergens producing such a condition can be grouped together, such a group as animal emanations, or dust, might be used to specify more definitely if placed in parenthesis.

It might be well to follow the suggestion of Cook and Coca and classify all bronchial asthma as either allergic or non-allergic; if allergic, specify whether perennial or seasonal and then designate in the same fashion in which allergic rhinitis was handled whether it is inhalant, ingestant, injectant or contactant. It might be necessary to add a fifth designation, focal, indicating a sensitivity to bacteria or fungi. As there are other accepted causes of bronchial spasm, we are justified in designating them as nonallergic. In this category would be placed pulmonary fibrosis and pulmonary emphysema with associated bronchial spasm, cardiorenal disease, thymic enlargement and reflex bronchial spasm.

Allergic conditions of the skin constitute an extensive subject but it should be possible to handle it in the same manner as rhinitis and bronchial asthma.

Food allergy, or gastrointestinal allergy, should be placed under disease of the gastrointestinal tract, conforming to the topographic classification. As these cases are practically always the result of food or drugs ingested, they would be obviously called ingestant and better specified in parenthesis food or drugs. However, if this syndrome of gastrointestinal allergy which is usually characterized by nausea and emesis, cramps and diarrhea results from some substance injected naturally, it would be classified as injectant.

Physical allergy, such as hypersensitivity to heat and cold, affects the body as a whole topographically and it would have to be placed in that category. From the standpoint of a mode of production, it would seem logical to consider this type of allergy as contactant.

This classification has its limitations, yet I hope it will serve a useful purpose in the recording of allergic conditions.

Problems of Dermatologic Nomenclature

DR. HOWARD FOX, New York: The average physician who looks at the list of diseases of the skin in the Standard Nomenclature will think the subject of dermatology is perhaps hopeless. The list includes some diseases which are of mere

academic interest. The last mentioned are, however, important as a background for differential diagnosis.

We have long passed the stage of merely naming diseases of the skin. To listen to some discussions at our national societies, one might think the speakers were physiologists, chemists, pathologists, mycologists or even physicists.

Many of the diseases in our list were named generations ago, before pathogenic organisms were discovered. Some of these names are so universally used that it would be almost impossible to change them. Many of them are fanciful, such as psoriasis, lichen and pemphigus. It would be difficult to change names like these, and it would be unwise until we are certain of their causation.

I realize the trend toward English and away from Latin or Greek words, but I hope that in the next edition of the Classified Nomenclature we may continue to use to a large degree Latin or Greek names for diseases of the skin. One reason for doing so is long usage of these terms. A second reason is consistency. If from 80 to 90 per cent of our terms are in Latin, to be consistent all or nearly all of them should be Latinized. A more important reason is an international one. The only possible international nomenclature is one of Latin or Latinized Greek words. While English is the best modern language for international communication, it is not universally understood.

Certain anatomic terms in Latin or Greek cannot be changed. If we must gradually change our nomenclature to English, at least we should exclude names in French or other modern languages as far as possible. In our dermatologic list we still have one French term, "perlèche," and one Dutch term, "veldt sore." Thus far we haven't been able to get rid of them.

I am in accord with the tendency to omit the name of the person who first described a disease. Our list now contains only three terms which are designated solely by the names of those who first described them. They are Bowen's disease, Fox-Fordyce disease and, of course, Raynaud's disease. We will welcome the deletion of the describers' names when we are able to devise satisfactory titles for the diseases in question. In a few other disorders the name of the describer is mentioned with the disease.

The dermatologists are not the only ones who have plenty of Latin terms. How would the ophthalmologists like to have English substitutes for such terms as amaurosis, amblyopia, arcus senilis, chalazion, ectropion, exophthalmos, iridocyclitis, mydriasis and ptosis? In the revision of the Classified Nomenclature I suggest deletion of the word "infectious," which is used throughout the volume. There is no such word, according to Dorland's, Webster's, the Century, Standard and Oxford dictionaries.

DISCUSSION

DR. MORRIS FISHBEIN, Chicago: A great many of the terms which Dr. Fox characterizes as Latin are now recognized as English, and no one wants to abolish those terms.

Terminology in Diseases of the Blood-Forming Organs

DR. RAPHAEL ISAACS, Ann Arbor, Mich.: In writing a review of hematology this year, every time I came across a reference in any of the articles appearing in 1939 to "leukemia" or to a lymph gland disease I jotted down the name. There are about sixty-one odd names describing leukemia. There are not that number of types of leukemia. Is this a *refined classification*? Why are there so many names? I tried to classify these names in some way, and the only classification I could make was to put them in alphabetical order. There seemed to be tremendous overlapping. Which shall we take, "myelogenous leukemia," "myelotic leukemia," "myeloid leukemia"? There seems to be no hope of simplifying this list. It is difficult in hematologic subjects to give a cause of the disease, so we shall have to use some expression which is arbitrary. In this field it would be satisfactory to have in the index all these names with the proper number after them. I think many people would prefer to look in the index under their favorite name and find the classification number right there. It would solve their problems.

Sometimes a stage in a disease is given a name, like "myeloblastic leukemia," which is just a stage probably in the ordinary development of leukemia. Some of the names are clinical, such

as "malignant lymphoma"—"lymphoma" because somebody saw a lump in the body where a lymph gland would be, and "malignant" because he couldn't cure it. Some names are pathologic, such as "round cell sarcoma." There is a whole list of names which are the result of looking at a section under the microscope. Are we not to name a disease until we have done a biopsy or until after an autopsy? We must have some name during life. That is one reason for so many names.

Some of these names change so rapidly that it is impossible to keep up with the literature on the subject. Almost every few days an article comes out with a new name of a variation of some old disease. There is often confusion between groups and single diseases or specific diseases. For example, the term "lymphosarcoma" is sometimes used for a whole group of diseases and sometimes for a specific disease. There is confusion with the suffixes. For example "oid" in a term like "myeloid." Is it "myelogenous leukemia" or is it "myelocytic leukemia"? There is the ending "ic," the ending "osis" and the ending "oma," which are all confused.

DISCUSSION

DR. MORRIS FISHBEIN, Chicago: Medicine proceeds by epochs, the epoch of allergy and the epoch of advancement in diseases of the blood. It might be possible in many of these revisions to concentrate on these particular fields which mark an epoch of medical advancement.

Diseases of Endocrine Origin

DR. ELMER L. SEVRINGHAUS, Madison, Wis.: In line with what Dr. Fishbein has said, the past decade has witnessed the development of definitely identifiable endocrine materials. The same thing might be said for nutritional materials, especially vitamins. We have developed also new tools for measuring function so that we are able to talk in terms of etiology more specifically than ever before.

I might call attention to the type of thing we are advising. On page 84 in the book, the etiologic classification will have to be expanded by the addition of more vitamins. The numbering scheme makes that possible. How long the numbering scheme will be adequate, I do not know. My associate Dr. Gordon says there are now probably something like thirty-one or thirty-two identifiable vitamins. They haven't all had their clinical syndromes described yet.

In the case of the endocrine materials, the number scheme is already sadly taxed, however, because here we must plan for overactivity and underactivity in the case of each gland. There is no hope at this time of trying to assign a different number to disturbances in the growth-promoting glands, the gonadotropic, the thyroidotropic and the anterior pituitary. We shall have to list it simply as anterior pituitary and be satisfied with that. Perhaps that is just as well until we can be certain of chemically identifiable fractions of the pituitary. Even with that in mind we shall have to use every number we can find in the expansion of this scheme, and at the same time we do that we are going to suggest dropping numbers referring to function of the thymus and the pineal until somebody can define functions for those glands.

Another matter is that we should clearly distinguish between growth and development. They are at present listed as one. The number scheme will allow that to be done without much difficulty.

I invite attention to the group called "Diseases of the Psychological Unit." There is increasing need in medicine for attention to such a thing as a psychobiologic unit, but there are some reasons for thinking that infantilism and precocity and premature puberty and menopause syndrome don't belong there, since we can begin to assign them to definite etiologic forces or single organs. They are therefore recommended for deletion at that point, since they do appear again in the appropriate place with reference to a given gland.

Similar things can be said about a number of items which appear again, not under psychobiologic units, but under body as a whole. When we get to such things as obesity there is an entire section, from the bottom of page 111 to the middle of page 116. Practically that entire portion of the book we are recommending for deletion, because many of those items appear

later on and some of them will be inserted in other sections at the appropriate place. The places where they will appear will occur at two sites later in the book, one of them in the section which is now devoted to disturbances of the genital system. That is because of the rapid development of genital physiology from an endocrine point of view. Disturbances of the thymus and functional disturbances of the thyroid should all be listed

under "thyroid," instead of having "cretinism" listed in one part of the book and "hyperthyroidism" in another part. We believe we can bring together things more logically associated, which can more easily be found, and can have a teaching advantage in showing their association. In general, revision is needed also in the various types of disorders of menstrual function and fertility.

OFFICIAL NOTES

THE NEW YORK SESSION

Change in Date of Session on Anesthesia

It has been found advisable to change the Session on Anesthesia in the Section on Miscellaneous Topics from Wednesday afternoon, June 12, to Thursday afternoon, June 13. This will enable all those interested to attend the Session on Anesthesia on Thursday afternoon and the Symposium on Anoxia in the Section on Pathology and Physiology on Wednesday afternoon if they so desire.

Registration

The Bureau of Registration will be located on the second floor of the Grand Central Palace, Lexington Avenue between Forty-Sixth and Forty-Seventh streets. Fellows are urged to bring with them their 1940 Fellowship Cards, which will facilitate registration. Any Fellows who have not received cards for 1940 should secure them at once by writing to the American Medical Association, 535 North Dearborn Street, Chicago, Ill.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—The House Committee on Mines and Mining has held a hearing on S. 2420, already passed by the Senate, proposing to authorize the Secretary of the Interior to make certain inspections and investigations in coal mines for the purpose of obtaining information relating to health and safety conditions, accidents and occupational diseases therein. S. J. Res. 256, introduced by Senator Bilbo, Mississippi, has been reported favorably to the Senate by the Committee on the Library, proposing to designate a day to be observed as Doctor's Day.

Bills Introduced.—H. Res. 493, introduced by Representative Rankin, Mississippi, proposes to authorize the House Committee on World War Veterans' Legislation or any subcommittee thereof to make a comprehensive survey and inspection of soldiers' hospitals and other Veterans' Administration facilities, including any hospital with which the government has a contract for ex-service men of any war in which the United States was engaged. The committee is to be authorized to make a report of its findings to the House, accompanied by such recommendations in the form of a bill or otherwise as it may deem necessary. H. R. 9735, introduced by Representative Ramspeck, Georgia, is a bill "To encourage and promote the

highest standards of service among officers and employees of the United States by creating the Association of Government Employees." Among other things, this corporation is to be authorized to engage in educational, charitable, recreational, athletic, social, health, mutual benefits and cooperative activities, and to maintain and operate facilities incidental thereto. H. R. 9777, introduced by Representative Voorhis, California, proposes to promote national health and welfare through appropriations for hospitals and for prevention, education and control of tuberculosis. S. 3924, introduced by Senator Wagner and referred to briefly in THE JOURNAL last week, proposes to amend the Social Security Act so as to provide insurance benefits for wage earners permanently and totally disabled for causes not arising out of their employment. In addition to cash benefits to be paid, the bill proposes that the Social Security Board may make provisions for the furnishing of medical, surgical, institutional, rehabilitation or other services to individuals entitled to such cash benefits, if such services may aid in enabling such individuals to return to gainful work. The bill provides that such services shall be furnished by qualified "practitioners" and through governmental and non-governmental hospitals and other institutions qualified to furnish such services.

WOMAN'S AUXILIARY

Illinois

At a meeting of the auxiliary to the Adams County Medical Society in Quincy, Dr. Arthur Bitter spoke on "Advances in Surgical Treatment and Operations."

Members held a round table discussion on socialized medicine at the meeting of the auxiliary to the Sangamon County Medical Society in Springfield December 11.

Dr. Melvin F. Blaurock, psychiatrist at the Institute of Juvenile Research, gave an illustrated lecture on "A New Approach of the Problems of Juvenile Delinquency" at a meeting of the auxiliary to the Will-Grundy County Medical Society in Joliet.

Oregon

The auxiliary to the Benton County Medical Society is collecting books for a library for the patients in Corvallis General Hospital.

The auxiliary to the Clatsop County Medical Society has done much sewing for patients in the Doernbecher Memorial Hospital for Children in Portland.

The auxiliary to the Coos and Curry County Medical Society met in North Bend January 16. The main project of the auxiliary is helping the needy at the county farm in Coquille.

The auxiliary to the Harney County Medical Society has 100 per cent membership. *Hygieia* has been placed in all schools in the county by the auxiliary's cooperation with the Harney County Health Association.

Washington

The auxiliary to the King County Medical Society held meetings in Seattle in November, December and January. Dr. Edwin Guthrie discussed "Human Relationships"; Dr. and Mrs. Austin DeFreece, European travel; Mrs. L. S. Roach, the philanthropic fund of the auxiliary, and Senator Pearl Wamaker, the "Human Side of the Legislature."

The auxiliary to the Pierce County Medical Society was host to the auxiliary to the Washington State Medical Association at its midyear board meeting in Tacoma February 16.

The annual guest day of the auxiliary to the Spokane County Medical Society was held on January 12. A panel discussion was presented as follows: Dr. M. S. Wright, public health; Dr. C. L. Lyon, pediatrics; Drs. J. B. Plastino and T. I. Moore, socialized medicine; Mrs. I. Hanks, Spokane County Public Health Council. Dr. Moore also spoke on the platform of the American Medical Association and the Wagner Health Bill. More than 125 persons attended the meeting.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ADDITIONAL MEDICAL COLLEGE NEWS AND ARTICLES APPEAR IN THE STUDENT SECTION, PAGE 2157.

ALABAMA

Personal.—The Houston County Medical Society gave a dinner recently in honor of Dr. Mercer S. Davie, Dothan, then president of the Medical Association of the State of Alabama, and presented him with a traveling case and fitted week-end bag. Dr. Marye Y. Dabney, Birmingham, as guest speaker, discussed "The Use of Hormones in Gynecology."

Society News.—Dr. Merle E. Smith, Parrish, addressed the Walker County Medical Society, Jasper, April 12, on "Pregnancy and Cervical Carcinoma."—The Calhoun County Medical Society was addressed in Anniston recently by Dr. James S. McLester, Birmingham, on "Diet in Heart Disease" and Dr. David H. Poer, Atlanta, "The Diagnosis and Treatment of Thyroid Conditions in the Southern Area."

Postgraduate Lectures.—A series of postgraduate lectures in internal medicine opened in Montgomery, April 26, to continue for six weeks, for the benefit of physicians in Montgomery, Bullock, Autauga, Elmore and Lowndes counties. The lecturers are Drs. William A. Soderman and Julius L. Wilson, instructor in medicine and associate professor of medicine, respectively, Tulane University of Louisiana School of Medicine, New Orleans. It is also planned to give the same lectures in Dothan, Troy, Eufaula and Greenville.

CONNECTICUT

Dr. Francis Blake Made Acting Dean of Yale.—Dr. Francis G. Blake, Sterling professor of medicine, Yale University School of Medicine, New Haven, has been appointed acting dean of the school. Dr. Stanhope Bayne-Jones is retiring as dean July 1. Dr. Blake graduated at Harvard Medical School in 1913. He was a member of the staff of Peter Bent Brigham Hospital from then until 1916, when he went to the Rockefeller Institute for Medical Research for a year. From 1917 to 1919 he was associate professor of medicine at the University of Minnesota Medical School, Minneapolis. The following year he was associate in medicine at Rockefeller Hospital and from 1920 to 1921 associate member of the Rockefeller Institute; he was a member of its scientific board of directors from 1924 to 1935. He joined the Yale faculty as John Slade Ely professor of medicine in 1921 and served until 1927, when he was made Sterling professor of medicine. Among other positions Dr. Blake has been chairman of the division of medical sciences, National Research Council, 1933-1936; chairman of the Section on the Practice of Medicine, American Medical Association, 1938, and president of the American Society for Clinical Investigation and American Association of Immunologists.

GEORGIA

Personal.—Dr. Stuart P. Vandiviere has resigned as health commissioner of Americus-Sumter County to accept an assignment for duty with the U. S. Army air corps at Maxwell Field, Ala., newspapers reported. Dr. Henry T. Adkins, Cochran, has been appointed to succeed Dr. Vandiviere.

Society News.—Dr. Albert Worth Hobby presented a paper before the Fulton County Medical Society, Atlanta, April 4, entitled "Air Embolism Following Pneumothorax." Dr. Frank Lee Bivings presented a paper before the society, April 18, entitled "Relation of Asthmatic Bronchitis to Chronic Upper Respiratory Infections in Children: A Five Year Study of 235 Cases."

State Medical Election.—Dr. Allen H. Bunce, Atlanta, was chosen president-elect of the Medical Association of Georgia at its annual session in Savannah in April and Dr. Job C. Patterson, Cuthbert, was installed as president. Other officers are Drs. Julian K. Quattlebaum, Savannah, and Marion T. Benson Jr., Atlanta, vice presidents, and Dr. Edgar D. Shanks, Atlanta, secretary-treasurer. Dr. Bunce once held the office of secretary-treasurer for fifteen years. In 1941 the association will meet in Macon, May 13-16.

ILLINOIS

Society News.—Dr. Fridrich P. E. Bornstein, Rochester, among others, addressed the Sangamon County Medical Society in Springfield, May 2, on "Pharmacology of the Myocardium." Dr. Ralph H. Major, Kansas City, Mo., addressed the society, April 4, on "Therapy of Endocarditis Lenta."—Dr. Lee C. Gatewood, Chicago, discussed "Dysentery Including Amebic Dysentery" before the Madison County Medical Society in Highland, May 3.—Dr. James H. Hutton, Chicago, discussed "Recent Development in Endocrine Diagnosis and Therapy" before the Adams County Medical Society in Quincy, April 8.

Chicago

Alumni Day at University of Chicago.—Alumni of the Division of Biological Sciences, University of Chicago, will hold their annual assembly June 7. The speakers at the scientific sessions will include:

Dr. Charles B. Huggins, The Prostate Problem.
Dr. Lester R. Dragstedt, Recent Work with Lipocain.
Dr. Dwight F. Clark, Treatment of Psoriasis with Lipocain.
Dr. Keith S. Grimson, Surgical Treatment of Hypertension.
Dr. Henry T. Ricketts, Constancy of Action of Protamine Zinc Insulin.
Dr. Walter E. Hook, Studies on Hibernation.
Dr. Carl C. Pfeiffer, The Therapy of Migraine Headaches.
Dr. Curtis M. Flory, Production of Tumors by Tobacco Tars.
Dr. Francis B. Gordon, Inapparent Virus Infections in the White Rat.
Dr. Paul E. Ross, Some Impressions of Ovarian Neoplasms in Spleen Mice.
Dr. Jonathan M. Williams, Cleveland, Use of Erythroidine in Metrazol Therapy.
Dr. Abraham Kauvar, Boeck's Sarcoid (Schaumann's Disease).
Dr. V. Brown Scott, Bloomington, Ind., Observations on the External Pancreatic Secretions in the Fasting Dog.

Alumni Reunion.—Alumni of Rush Medical College will hold a reunion at the college June 6-7. The program includes symposiums on endocrines, chemotherapy, abdominal surgery, gastro-enterology, cardiovascular renal disease and traumatic surgery, and the following speakers, among others:

Dr. James W. Merricks, What About the Irritable Bladder in Women?
Dr. George E. Shambaugh Jr., Operative Restoration of Hearing in Otosclerosis.
Drs. Carl W. Apfelbach and Ernest E. Irons, Aspiration Bronchopneumonia.
Dr. John H. Olwin, Methods for Estimation of Prothrombin Levels and Administration of Vitamin K.
Dr. Evans W. Pernokis, Adequate Control of Pernicious Anemia.
Dr. Paul A. Campbell, Profound Physiologic Effects of Modern High-Speed, High-Altitude Military Flying.
Dr. Herman L. Kretschmer, Significance of Blood in the Urine.
Dr. Archibald L. Hoyne, Old and New Methods in the Treatment of Meningitis.
Dr. Herbert C. Breubhaus, The Neutralizing Capacity of Antacids.
Dr. Hillier L. Baker, Acromioclavicular and Subacromioclavicular Bursitis: Treatment by Local Infiltration and Excision.
Dr. Aaron Arkin, Primary Carcinoma of the Lung—A Prevalent Disease.
Dr. Heyworth N. Sanford, Thromboplastic Factors in Coagulation.
Dr. Clayton J. Lundy, Early Diagnosis of Coronary Sclerosis.
Dr. Clark W. Finnerud, Skin Cancer.
Dr. Adrien H. P. E. Verbrugghen, Head Injuries.

The annual banquet at the Stevens Hotel, Thursday evening, will be addressed by Dr. Morris Fishbein, Editor of THE JOURNAL. At 7 o'clock, Friday evening, a reunion of Presbyterian Hospital interns will take place in the Oceanic Room of the Knickerbocker Hotel.

INDIANA

Society News.—The Indianapolis Medical Society will be addressed, May 28, by Drs. Edwin L. Libbert, Lawrenceburg, on "Medical Application of Physical Medicine," and Edwin N. Kime, "Surgical Application of Physical Medicine." The society was addressed, May 14, by Dr. Percy S. Pelouze, Philadelphia, on gonorrhea.

Changes in Health Officers.—Dr. Walter M. McGaughey, Greencastle, has been appointed health officer of Putnam County to fill the unexpired term of Dr. William M. O'Brien, resigned. The latter's term was to have ended Dec. 31, 1941.—Dr. Claude D. Greene, Spencer, was recently named health officer of Owen County, succeeding Dr. Boaz Yocum, Coal City, who held the position for ten years.—Dr. Paul P. Bailey, Fort Wayne, has been appointed health officer of Allen County, succeeding Dr. Noah A. Rockey.

MASSACHUSETTS

Dr. Parran Lectures on the Nation's Health.—Dr. Thomas Parran, surgeon general, U. S. Public Health Service, Washington, D. C., gave the fourteenth William Thompson Sedgwick Memorial Lecture of the Massachusetts Institute of Technology, Cambridge, April 11. His subject was "Nutrition and the Nation's Health."

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Society News.—The Boston Gastroenterological Society was addressed, April 3, by Drs. Charles W. Finnerty on "The Treatment of Peptic Ulcer Complicated by Diabetes Mellitus"; Timothy F. P. Lyons and Marino F. Vidoli, "Rectal Polyps: A Pathologic Discussion," and Louis F. Curran, "Achlorhydria."—Dr. Arthur M. Fishberg, New York, discussed "Essential Hypertension" before the Greater Boston Medical Society, April 2.—Dr. Moscos Ralph Kaufman, Boston, addressed the New England Society of Psychiatry in Hathorne, April 24, on "Factors in Psychotherapy: A Psychoanalytic Evaluation."—Dr. Hamilton Montgomery, Rochester, Minn., discussed "Pathologic Features of Some of the Non-Neoplastic Dermatoses" before the New England Pathological Society in Boston, April 18.

MICHIGAN

Personal.—Dr. Charles E. Stewart, director of the Battle Creek Sanitarium, Battle Creek, has announced that he will retire at the end of the year, newspapers reported. Until then Dr. Stewart will serve as adviser to Dr. John E. Gorrell, who was appointed administrator at the sanitarium in October 1939. Dr. Stewart joined the staff of the sanitarium in 1895; in 1917 he was made associate director and subsequently director.—Paul H. Jeserich, D.D.S., Ann Arbor, has been appointed a member of the state council of health for the term ending June 30, 1945, succeeding Dr. Carleton Dean, Charlevoix, who resigned recently to become deputy state health commissioner. Dr. Jeserich is president of the Michigan State Dental Society and director of postgraduate education at the University of Michigan School of Dentistry.

MINNESOTA

State Medical Election.—Dr. Berton J. Branton, Willmar, was chosen president-elect of the Minnesota State Medical Association at its annual meeting in Rochester in April and Dr. Bertram S. Adams, Hibbing, was installed as president. Drs. Albert Fritsche, New Ulm, and Frank J. Heck, Rochester, were elected vice presidents. The 1941 meeting will be in St. Paul. Dr. Carl W. Waldron, Minneapolis, was awarded the prize presented each year by the Southern Minnesota Medical Association for the best scientific exhibit at the state meeting. His theme was "Fractures of the Facial Bones."

MISSISSIPPI

Hospital News.—The Beacham Memorial Hospital was recently opened in Magnolia by Drs. Aubrey V. Beacham, Magnolia, Hugh T. and Woodard D. Beacham, New Orleans, all brothers, as a memorial to their father. Dr. George W. Robertson, Magnolia, made the principal address. Dr. Rudolph Matas, New Orleans, also spoke at the dedicatory ceremony.

MISSOURI

Personal.—Dr. Mary Jeanette Lower, Kansas City, was presented with the Award of Honor of the Soroptimist Club of Kansas City at a banquet in her honor, May 6. Dr. Lower is a charter member of the club, which is one of 175 similar organizations that make up the American Federation of Soroptimist Clubs of Professional and Executive Business Women. Membership is by invitation only and only one member of each classification is eligible.

Annual Clinic.—The St. Joseph Clinical Society held its ninth annual two day spring clinic at the Hotel Robidoux, St. Joseph, recently. The following participated:

Dr. Robert Elman, St. Louis, Intravenous Fluids in the Surgical Patient with Special Reference to Protein Replacement.
Dr. Emil D. W. Hauser, Chicago, Low Back Pain Due to Functional Decompensation.
Dr. Lee Forrest Hill, Des Moines, Iowa, Changes Produced by Severe Diarrhea and Their Reconstitution.
Dr. Virgil E. Simpson, Louisville, Ky., Criteria for Classification and Diagnosis of Heart Disease.
Dr. Leo G. Rigler, Minneapolis, Roentgen Diagnosis of Acute Abdominal Conditions and Bronchial Asthma.
Dr. William B. Kountz, St. Louis, The Heart and Vascular System in Middle Age and Its Importance in Clinical Medicine.
Dr. Paul A. O'Leary, Rochester, Minn., The Eczemas.
Dr. Joseph C. Bradsall, Philadelphia, Incidence of Urinary Tract Obstruction in Renal Disease.
Dr. Lester D. Powell, Des Moines, Consideration and Surgical Treatment of Uterine Prolapse.
Dr. Lathan A. Crandall Jr., Memphis, Tenn., Vitamin B and Functional Digestive Disturbances.

At a banquet the speakers were Dr. Simpson on "Chemotherapy of Pneumonia"; Dr. Charles W. Mayo, Rochester, "Malignancy of the Right Colon," and Dr. O'Leary, "The Treatment of Syphilis." Dr. Paul C. Barton, Director, Bureau of Investigation, American Medical Association, Chicago, addressed a preconvention evening meeting on "Patent Medicines—Old and New."

State Medical Meeting at Atlantic City.—The one hundred and seventy-fourth annual meeting of the Medical Society of New Jersey will be held at Haddon Hall, Atlantic City, June 3-6, under the presidency of Dr. Edward Zeh Hawkes, Newark. Among the speakers will be:

Dr. Hobart A. Reimann, Philadelphia, Neurologic Manifestations of Nutritional Deficiencies.
Dr. Fritz H. Lewy, Philadelphia, New York, A Clinical Survey of the Vitamin B Complex and Its Components.
Dr. Martin G. Vorhaus, Philadelphia, Complications of Peptic Ulcers: Diagnosis and Treatment.
Dr. George P. Müller, Philadelphia, Problems Encountered in the Diagnosis and Treatment of Uterine Cancer.
Dr. Lewis C. Scheffey, Philadelphia, Gastrointestinal Disturbances in the Hemorrhagic Blood Dyscrasias.
Dr. Charles C. Higgins, Cleveland, Implantation of Ureters.
Dr. Thomas Fitz-Hugh Jr., Philadelphia, Gastrointestinal Disturbances in the Hemorrhagic Blood Dyscrasias.
Dr. William D. Stroud, Philadelphia, Surgery of the Biliary Ducts and Their Complications.
Dr. Frank H. Lahey, Boston, Surgery of the Biliary Ducts and Their Complications.
Drs. Chevalier L. Jackson, William A. Swalm and Lester M. Morrison, Philadelphia, Gastritis, Diagnosis and Treatment.
Drs. Marion B. Sulzberger and Rudolf L. Baer, New York, Dermatologic Manifestations of Gastrointestinal Disease and Nutritional Deficiencies.
Dr. Samuel Bellet, Philadelphia, Effect of Tobacco Smoke and Nicotine on the Normal Heart and in the Presence of Myocardial Disease Produced by Coronary Artery Ligation: An Experimental Study in Dogs.
Dr. Sydney R. Miller, Baltimore, Chronic Nephritis and Its Treatment in the Light of Contemporary Renal Physiology.
Dr. Emil Novak, Baltimore, Endocrine Aspects of Primary Dysmenorrhea.
Dr. Leonard G. Rowntree, Philadelphia, Hyperinsulinism.
Dr. Edward L. Bauer, Philadelphia, Rheumatic Infections in Children.
Dr. Thomas A. Shallow, Philadelphia, Surgical Treatment of Gastric and Duodenal Ulcer.
Dr. Henry W. Cave, New York, Cancer of the Rectum.
Dr. Douglas P. Murphy, Philadelphia, Studies in Uterine Motility.
Arthur T. Vanderbilt, L.L.D., Newark, professor of law, New York University Law School, will address a general session on "What Is Needed Now." The thirteenth annual meeting of the Woman's Auxiliary to the Medical Society of New Jersey will be at Haddon Hall, June 4-6.

NEW YORK

State Medical Election.—Dr. James M. Flynn, Rochester, was elected president of the Medical Society of the State of New York at the annual meeting in New York, May 7, and Dr. Samuel J. Kopetzky, New York, was chosen president-elect. It was necessary to elect a president because of the death of Dr. James H. Borrell, Buffalo, chosen president-elect at the 1939 meeting. Dr. Albert A. Gartner, Buffalo, was elected vice president and Dr. Peter Irving, New York, was reelected secretary. Next year's meeting will be in Buffalo.

Professor of Anatomy Appointed at Rochester.—Karl E. Mason, Ph.D., associate professor of anatomy at Vanderbilt University School of Medicine, Nashville, has been appointed professor and head of the department of anatomy at the University of Rochester School of Medicine and Dentistry, Rochester, N. Y., according to *Science*. He will succeed Dr. George W. Corner, who recently was appointed director of the department of embryology of the Carnegie Institution. Dr. Mason is a Canadian and took his doctor's degree at Yale University, New Haven, Conn., in 1925. He went to Vanderbilt in 1927 as instructor in anatomy; he became assistant professor in 1929 and associate professor in 1930.

New York City

Society News.—The program of the stated meeting of the New York Academy of Medicine, May 2, was devoted to "Problems of Aging." The speakers were Drs. George Morris Piersol, Philadelphia, on the general problem; Ernst P. Boas, Piersol, Philadelphia, on the general problem; neurophysiologist problems. At a meeting of the New York Neurological Society with the section of neurology and psychiatry of the New York Academy of Medicine, May 7, the speakers were Drs. Hiram H. Merritt, Boston, and Tracy J. Putnam, on "Periodic Dullness as an Epileptic Equivalent"; Herbert Jasper, D.Sc., Montreal, Canada, "Electro-Encephalographic Localization of Focal Cerebral Lesions," and Dr. Lawrence S. Kubie, "The Repetitive Core of Neurosis."

Personal.—The staff of Morrisania Hospital gave a dinner, May 4, in honor of five members of its staff: Drs. Nathan B. Van Etten, President-Elect of the American Medical Association; Terry M. Townsend, immediate past president of the Medical Society of the State of New York; George E. Milani, president of the Bronx County Medical Society; Harry Aronow, member of the council of the state society, and William

L. Bollens, D.D.S., president of the Bronx County Dental Society.—Dr. Herbert S. Gasser, director of the Rockefeller Institute for Medical Research, has been chosen to receive the honorary degree of doctor of science from the University of Wisconsin at the June commencement.

OHIO

Personal.—Dr. Neal D. Carter, Columbus, has been appointed head of the adult hygiene division of the state health department, it is reported.—Dr. William M. Skipp, Youngstown, who was to be installed as president of the Ohio State Medical Association at the annual meeting in Cincinnati, May 14-16, was honored by the Mahoning County Medical Society with a dinner at the Youngstown Club, May 8.—Dr. Ralph B. Taylor, Columbus, has been appointed a member of the state medical board to succeed Dr. Louis T. Franklin, Chillicothe.—Dr. Arlington J. Rawers, Mendon, has been appointed health officer of Mercer County to succeed the late Dr. Frank E. Ayers, Celina.

Society News.—Dr. Waltman Walters, Rochester, Minn., addressed the Academy of Medicine of Cleveland, April 19, on "Surgical Treatment of Lesions of the Gallbladder and Bile Ducts."—Dr. Milton B. Cohen, Cleveland, addressed the Mahoning County Medical Society, Youngstown, March 19, on "The Clinical Problems in Allergy."—Dr. George T. Pack, New York, addressed the Guernsey County Medical Society, Cambridge, recently, on "Cancer of the Stomach."—Dr. John Henry Lazzari, Cleveland, addressed the Lorain County Medical Society, Lorain, recently on "Cancer Management and Therapy."—Dr. Frank W. Anzinger addressed the Clark County Medical Society, Springfield, recently on "Diabetes Mellitus: Etiology, Diagnosis, Treatment and Prevention of Complications."—Dr. Roger O. Egeberg, Cleveland, discussed "Treatment of Asthma" before the Portage County Medical Society, Kent, recently.—Dr. Elmer L. Sevringhaus, Madison, Wis., addressed the Columbus Academy of Medicine recently on "Endocrine Therapy in General Practice."

PENNSYLVANIA

Wilkes-Barre Postgraduate Conference.—Mercy Hospital, Wilkes-Barre, presented its seventh annual postgraduate conference, April 25, with the following speakers:

- Dr. Belford C. Blaine, Pottsville, The Program of the Commission on Diabetes of the State Medical Society.
- Dr. Joseph T. Beardwood Jr., Philadelphia, Diabetes as a Complication of Other Diseases.
- Leon C. Chesley, Ph.D., Jersey City, N. J., Biochemistry of the Toxemias of Pregnancy.
- Dr. M. Herbert Barker, Chicago, The Ionic Control of Edema.
- Dr. John Scudder, New York, Shock: Blood Studies as a Guide to Therapy.

Philadelphia

Schmookler Lecture.—Dr. Marion B. Sulzberger, New York, delivered the Henry B. Schmookler Memorial Lecture at Mount Sinai Hospital, May 6, on "Some Present Concepts of Dermatologic Allergy, with Particular Reference to Their Application in Practice."

Society News.—The orthopedic section of the Philadelphia County Medical Society and the Baltimore Orthopedic Society held a joint meeting at Jefferson Medical College recently. The speakers were Drs. Charles C. Chapple, Philadelphia, on "Congenital Deformities in Children"; Morris Thomas Horwitz, Philadelphia, "Investigation of the Surgical Anatomy of the Knee Joint"; Benjamin Franklin Buzby, Camden, N. J., "End Results of Excision of the Elbow," and Edwin O. Geckeler, Philadelphia, "An Accurate Method of Subcutaneous Internal Fixation for Fracture of the Hip." The commentators, all of Baltimore, were Drs. I. William Nachlas, Allen F. Voshell, Harold R. Bohlman and George E. Bennett.—Dr. Howard B. Sprague, Boston, addressed the Philadelphia Heart Association at its annual meeting, April 10, on "Treatment of Congestive Failure During Active Rheumatic Infection" and Dr. Thomas M. McMillan reviewed the association's work during the past year.—Dr. Frank L. Apperly, Richmond, Va., delivered the annual conversational lecture of the Pathological Society of Philadelphia, April 11, on "The Chemical Function of the Stomach in Health and Disease."

TEXAS

Society News.—At a meeting of the Hunt-Rockwall-Rains Counties Medical Society in Greenville, April 9, the speakers were Drs. Lawrence W. Johnston, Terrell, on "Carbuncle of the Kidney"; Samuel D. Whitten, Greenville, "Superficial X-Ray" and William M. Dickens, Greenville, "General Con-

siderations of the Use of Radiation Therapy with Reference to Some Specific Diseases."—Dr. Idys Mims Gage, New Orleans, addressed the Jefferson County Medical Society, Beaumont, in March, on "Abdominal Complications of Acute Appendicitis."—Speakers before the Dallas County Medical Society, April 25, included Drs. Arthur J. Schwenkenberg, Dallas, on "Metrazol and Insulin Treatment in Psychiatry" and Milford O. Rouse and Cecil O. Patterson, "Foreign Bodies of the Stomach Observed Through the Gastroscope."

WISCONSIN

Surgical Meeting.—The Milwaukee Society of Clinical Surgery held a joint meeting with the Wisconsin chapter of the International College of Surgeons, recently. Operative clinics were conducted at the Milwaukee County Hospital and in the afternoon and evening the following papers were presented:

- Dr. Rudolph W. Roethke, Milwaukee, Cervical Pregnancy.
- Dr. Frank D. Dickson, Kansas City, Mo., Foot Imbalance.
- Dr. Karl Schlaepfer, Milwaukee, Plastic Epileptitis.
- Dr. William J. Carson, Milwaukee, Lymphosarcoma of the Ileum.
- Dr. Frederick M. Douglass, Toledo, Ohio, Further Studies of End Results in Common Duct Obstruction.

GENERAL

Vitamin Research Prize Awarded.—A prize of \$1,000 offered by Mead Johnson and Company for advances in knowledge of the vitamin B complex was awarded at the annual meeting of the American Institute of Nutrition in New Orleans, March 13, for two achievements in investigation. The recipients were Dr. William H. Sebrell Jr., National Institute of Health, Washington, D. C., for the discovery of riboflavin and its use in keratitis; and a group from the research laboratories of Merck and Company, Rahway, N. J., for synthesis of vitamin B₆, now known as pyridoxine, John C. Keresztesy, Ph.D., Joseph R. Stevens, Ph.D., Stanton A. Harris, Ph.D., Eric T. Stiller, Ph.D., and Karl A. Folkers, Ph.D.

Parking Facilities for Physicians.—An "at the door" parking service will be available at the Grand Central Palace by the "20th Century Garage, Inc.," during the annual session of the American Medical Association in New York, June 10-14. This service has been created in order to relieve the parking problem of patrons and facilitates entrance to the Palace by car. Patrons drive to the main entrance where uniformed attendants deliver a claim check for cars and drive them to the garage. On departing the patron merely presents the claim check to the doorman, who telephones the garage and an attendant then delivers the car to the entrance of the Palace. The rates are as follows:

Two hours 50 cents, 10 cents each hour thereafter; \$1 all day, \$1.50 for twenty-four hours. Special daily and weekly rates for exhibitors. Pick up and delivery charge included.

Association for Thoracic Surgery.—The annual meeting of the American Association for Thoracic Surgery will be held at the Hotel Statler, Cleveland, June 6-8. Included among the speakers will be:

- Drs. Adrian V. S. Lambert, Edward P. Eglee and Robert H. Wylie Jr., New York, Empyema and Unexpanded Lung Problems in Pneumothorax.
- Dr. David T. Smith, Durham, N. C., Treatment of Fungous Infections of the Lung.
- Dr. Leo Eloesser, San Francisco, Further Experiences with Blocked Cavities in Pulmonary Tuberculosis.
- Drs. Jacob J. Singer, John C. Jones, and Leon J. Tragerman, Los Angeles, Aseptic Pleural Adhesions Experimentally Produced.
- Drs. Chevalier L. Jackson and Archibald R. Judd, Philadelphia, The Role of Bronchoscopy in the Treatment of Pulmonary Abscess.
- Drs. Burr Noland Carter, Jean M. Stevenson and Osler A. Abbott, Cincinnati, Esophago-Gastrostomy—An Experimental Study.

There will also be a symposium on bronchospirography by Drs. George C. Leiner and Max Pinner, New York, and William A. Zavod, Mount Vernon, N. Y.; David Salkin, Hopedmont, W. Va., and Carl G. Merkel, Mount Morris, N. Y.

Academy of Tuberculosis Physicians.—The American Academy of Tuberculosis Physicians will hold its fifth annual meeting at the Commodore Hotel, New York, June 10-11, under the presidency of Dr. Benjamin P. Potter, Jersey City. The speakers will include:

- Dr. Felix Baum, Newark, N. J., Rare Cases of Bilateral Idiopathic Spontaneous Pneumothorax in Nontuberculous Individuals.
- Dr. Robert B. Mitchell Jr., Baltimore, Eventration of the Diaphragm with Recurring Cardiac Disease.
- Dr. H. Tubel, re, Sarcoids: Manifestations of studies on the Possible Etiological
- Relat the Scientific Determination of
- Dr. Jacov Erythrocyte Sedimentation Rate.
- Dr. William F. Riehoff Jr., Baltimore, Bronchiogenic Carcinoma.

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Dr. George G. Finney, Baltimore, Lung Abscess.
Dr. James L. Duhrow, Des Moines, Iowa, Primary Bronchiogenic Carcinoma.
Dr. Ephraim T. Lisansky, Baltimore, A Method of Case-Finding for General Use.

Meeting of Ophthalmologists.—The American Ophthalmological Society will hold its seventy-sixth annual meeting at The Homestead, Hot Springs, Va., June 3-5. The speakers will include:

Dr. Martin Hayward Post, St. Louis, Sterilization of Sharp Instruments by Chemical Solutions.
Dr. Derrick T. Vail Jr., Cincinnati, Anterior Scleral Staphyloma and Retinal Detachment Cured by Excision.
Dr. Charles M. Swab, Omaha, Death Following Operation for Inclusion Report of Three Cases.
Dr. Phillips Thygeson, New York, Sulfanilamide Therapy of Inclusion Conjunctivitis.
Dr. Trygve Gundersen, Boston, Convalescent Blood for Herpes Zoster.
Dr. Frederick H. Verhoeff, Boston, A Case of Leptotrichosis Conjunctivae (Parinaud's Conjunctivitis) Without Glandular Involvement.
Dr. Harold G. Scheie and Francis Heed Adler, Philadelphia, The Site of the Disturbance of Tonic Pupils (Adie's Syndrome).
Drs. Peter C. Kronfeld, Chicago, C. K. Lin, and T. H. Luo, Peiping, China, The Protein Content of the Re-Formed Aqueous Humor in Man.

Red Cross Appeals for Funds.—The American Red Cross has issued a nationwide appeal for funds for a minimum war relief fund of \$10,000,000 to continue and expand essential activities on behalf of civilian victims of the hostilities in Europe. According to an announcement, the Red Cross had, May 6, spent close to \$1,500,000, most of it from reserve funds. More than \$300,000 additional had been spent by chapters in purchasing materials for production of relief supplies. Up to May 6 the 250,000 volunteer Red Cross workers had given more than 3,000,000 hours of their time since last September in the production of 447,000 warm garments and 2,261,000 surgical dressings. These supplies, along with tons of drugs and medicines, surgical instruments, x-ray equipment, ambulances, hospital tents, soap and other material have been shipped periodically to the Red Cross societies of war-affected countries. Aid is now being provided to Belgium, Luxembourg, Germany, Netherlands, Finland, France, Norway, England, Hungary and occupied Poland, Latvia, Lithuania, Rumania, and Yugoslavia. The announcement stated that the Red Cross societies of all countries involved in armed conflict in Europe have requested aid except Germany.

Special Society Elections.—Thorne M. Carpenter, Ph.D., Nutrition Laboratory, Carnegie Institution, Boston, was elected president of the American Institute of Nutrition at the annual meeting in New Orleans, March 13; Albert G. Hogan, Ph.D., Columbia, Mo., vice president, and Leonard A. Maynard, Ph.D., Ithaca, N. Y., secretary.—Dr. Stanhope Bayne-Jones, New Haven, Conn., was elected president of the annual meeting of Pathologists and Bacteriologists at the annual meeting in Pittsburgh, March 20. Dr. Samuel R. Haythorn, Karsner, in Pittsburgh, was chosen vice president and Dr. Howard T. Pemberton, Cleveland, Minn., was chosen president-elect of the American Association for the Study of Goiter at the annual meeting in Rochester, April 15. Dr. Frank E. Rogers, Denver, became president. Boston was tentatively named as the place of the 1941 meeting.—Dr. Louis Hamman, Baltimore, was elected president of the Association of American Physicians at its annual meeting in Atlantic City, May 8. Other officers include Drs. James H. Means, Boston, vice president; Hugh J. Morgan, Nashville, Tenn., secretary, and William S. McCann, Rochester, N. Y., treasurer.

Reunions in New York.—The committee on university dinners announces that the following organizations have made definite arrangements for reunions during the annual session of the American Medical Association in New York:

Johns Hopkins University School of Medicine, Baltimore, dinner, June 12.
New York Post-Graduate Medical School and Hospital, luncheon, June 12.
Harvard Medical School, Boston, dinner, June 12.
Columbia University College of Physicians and Surgeons, New York, dinner, June 12.
Northwestern University Medical School, Chicago, dinner, June 12.
Phi Beta Pi and Alpha Upsilon Omega, joint luncheon, June 12.
Phi Kappa Kappa, luncheon, June 13.
Phi Chi, luncheon, June 13.
Kings County Medical Society, dinner, June 15.

Nu Sigma Nu medical fraternity will hold a luncheon, June 12, at the Yale Club and not at the Waldorf-Astoria, as announced in THE JOURNAL May 11, page 1941, according to a notice from Dr. Arthur F. Warren, 667 Madison Avenue, New York, president of the New York Alumni Association. Dr. Francis Carter Wood, New York, will speak on "Changing Medicine" and Dr. Stuart Graves, Tuscaloosa, Ala., "The

Fraternity." The alumni of the University of Minnesota Medical School will hold a dinner at 6 o'clock Wednesday evening, June 12, at the Brauhaus Restaurant, New York. Dr. Louis A. Hauser, 140 East Fifty-Fourth Street, New York, is chairman.

Seminar on Physical Therapy.—The eighth annual seminar of the Western Section of the American Congress of Physical Therapy will be held, June 3-4, at the Fairmont Hotel, San Francisco. The speakers will include:

Dr. Harry Glenn Bell, San Francisco, Treatment of Erysipelas by Ultraviolet Light.
Gerhard K. Rollefson, Ph.D., Berkeley, Calif., Nature and Chemical Effects of Ultraviolet Light.
John B. de C. M. Saunders, San Francisco, The Postural Syndrome.
Dr. Arthur Merton Bassett, San Francisco, Diathermy in the Treatment of Bronchitis and Bronchiectasis.
Dr. Alice Potter, San Francisco, Local Heating in Pelvic Pathology.
Dr. John R. Upton, San Francisco, Freezing in Malignancy.
Dr. Erie Liljenerantz, San Francisco, Differential Diagnosis and Treatment of the Lumbosacral and Sacro-Iliac Pathology.
Dr. Joseph C. Risser, Los Angeles, Types of Low Back Pain.
Dr. Ottiwell W. Jones Jr., San Francisco, Association with Dislocations of Intervertebral Disks.
Dr. Verne T. Inman, San Francisco, Anatomical Discussion of Subluxations of the Spine: Manipulative Correction.
Dr. Mayo H. Soley, San Francisco, Anxiety States and Their Physiologic Manifestations.
Dr. Ernest G. Lion, San Francisco, Physical Therapy in Psychiatric Practice.
Dr. Samuel F. Boyle, San Francisco, Orthoptics.
Dr. Charles I. Singer, Long Beach, N. Y., Role of Spa Therapy in Chronic Degenerative Diseases.
Dr. Lucile M. Eising, San Francisco, Pool Therapy for Arthritis.
Dr. Benjamin Paul Davies, Stanford University, Calif., Treatment of Injuries to the Soft Tissues.

Committee on Revision of the Pharmacopeia.—At the thirteenth meeting of the United States Pharmacopoeial Convention in Washington, D. C., May 14-15, the following were elected as members of the Committee on Revision of the United States Pharmacopeia, 1940-1950:

Dr. Henry G. Barbour, New Haven, Conn.
Dr. Walter A. Bastedo, New York, N. Y.
George D. Beal, Ph.D., Pittsburgh, Pa.
Francis E. Bibbins, B.S., Indianapolis, Ind.
Dr. Charles L. Brown, Merion Station, Pa.
Dr. Charles B. Burt, Ph.D., Lincoln, Neb.
Joseph B. Castle, Boston, Mass.
Dr. William B. Castle, Baltimore, Md.
Clifford W. Chapman, Ph.D., Columbus, Ohio.
Bernard V. Christensen, Ph.D., Philadelphia, Pa.
E. Fullerton Cook, Pharm.M., New York, N. Y.
Dr. Arthur C. DeGraff, Syracuse, N. Y.
Dr. Marion S. Dooley, Chicago, Ill.
Dr. Carl A. Dragstedt, New York, N. Y.
J. Leon Lascoff, Pharm.D., Lafayette, Ind.
Charles O. Lee, Ph.D., Buffalo, N. Y.
Asa B. Lemon, Pharm.D., Baltimore, Md.
Dr. Perrin H. Long, Baltimore, Md.
Dr. Eli K. Marshall Jr., New Orleans, La.
Dr. George W. McCoy, Boston, Mass.
Dr. Walter L. Mendenhall, Pittsburgh, Pa.
Hugh C. Muldoon, Sc.D., New Orleans, La.
Dr. Erwin E. Nelson, New York, N. Y.
E. L. Newcomb, Pharm.M., Pharm.D., Pittsburgh, Pa.
Charles Leonard O'Connell, Pharm.D., D. C.
Justin L. Powers, Ph.D., Baltimore, Md.
Andrew G. DuMez, Pharm.D., Trenton, N. J.
Robert P. Fischelis, Pharm.D., Gainesville, Fla.
Perry A. Foote, Ph.D., New York, N. Y.
Dr. Harry Gold, New York, N. Y.
Forest J. Goodrich, Ph.D., Seattle, Wash.
Lloyd E. Harris, Ph.D., Norman, Okla.
Thomas J. Hill, D.D.S., Cleveland, Ohio.
M. L. Jacobs, Ph.D., Chapel Hill, N. C.
Glenn L. Jenkins, Ph.D., Lafayette, Ind.
Charles B. Jordan, D.Sc., Baltimore, Md.
John C. Krantz Jr., Ph.D., Mercer Island, Wash.
Henry A. Langenhan, Ph.D., Richmond, Va.
J. Allen Reese, Ph.D., Missoula, Mont.
Leon W. Richards, Ph.D., Upper Montclair, N. J.
George C. Schicks, Ph.D., Berkeley, Calif.
Carl L. A. Schmidt, Ph.D., Memphis, Tenn.
A. John Schwarz, Ph.D., Detroit, Mich.
Leonard A. Seltzer, Sc.D., Louisville, Ky.
Dr. Virgil E. Simpson, Philadelphia, Pa.
Dr. Isaac Starr, Ph.C., Detroit, Mich.
Frank O. Taylor, Boston, Mass.
Dr. Soma Weiss, Ph.D., Chicago, Ill.
Elmer H. Wirth, Sc.D., Boston, Mass.
Hcher W. Youngken, Sc.D., Iowa City, Iowa.
Louis C. Zopf, Ph.G., Iowa City, Iowa.

CORRECTION

Shot in the Vermiform Appendix.—Dr. E. P. Hummel, Sterling, Colo., calls attention to a misnomer in the heading of the clinical note by Dr. John R. Earl, St. Paul, in THE JOURNAL, May 11, page 1864. Number 6 shot were found, not BB shot, as implied in the heading. BB shot are considerably larger than number 6.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 20, 1940.

Cranial Surgery at the Front

When the last war began we were quite unprepared for a military effort on such a gigantic scale. Now the danger has been foreseen and arrangements have been made in advance in the light of our experience of the last war. As previous letters have shown, this is true of the medical corps. The latest advance announced is a mobile unit for cranial surgery to operate as near the battle front as possible. Since the last war there have been many advances in technic, largely in the use of electrical apparatus, x-rays, diathermy and so on which will be made available. For cranial surgery the Royal Army Medical Corps has constructed a mobile neurosurgical unit which is self contained. The vehicle is a motor lorry which carries a separate engine and dynamo. The cable conveys the current to the operating room, where it is distributed to lighting, surgical diathermy, operation table heaters and suction pump. The current also charges a 12 volt accumulator for the electromagnet. The equipment includes two sets of instruments, two folding operating tables with special folding head rests, two folding instrument tables and modern anesthetic apparatus. Sterilization of water and instruments is done by oil stoves, and there is also a high pressure sterilizer for instruments and dressings.

The personnel traveling in the lorry includes a neurosurgeon, a neurologist, an anesthetist, two surgical assistants and two operating room nurses. The unit is designed to operate chiefly at casualty clearing stations but will be based on a parent base hospital for its reserve supplies. It carries sufficient material for several hundred neurosurgical operations and can thus remain in the forward area for weeks at a time.

The Greatest Evacuation in History

At the outbreak of the war the greatest evacuation in history—the removal from London and other centers to places of greater safety from air raids of 1,270,000 persons in four days—was briefly described. At the Royal Society of Medicine Dr. J. A. Glover, medical officer of the Ministry of Health, devoted his presidential address to the Section of Epidemiology and State Medicine to the epidemiologic aspects of this evacuation. Plans began to be formed at the time of the Munich crisis. The country was divided into eighty-one evacuation areas, 1,100 reception areas, chiefly small towns and rural districts, and neutral areas. The number of evacuable persons was estimated at 3,644,000, of whom half were school children. It was expected that 80 per cent would avail themselves of the official machinery (the evacuation was entirely voluntary). Offers to receive 2,000,000 school children in private houses were received. The Ministry of Health arranged with the local authorities for increased hospital provision for infectious diseases in the reception areas. For expectant mothers obstetric areas were defined according to accessibility to lying-in hospitals, and 137 maternity homes containing 3,700 additional beds were provided for normal cases. Consultant obstetric services and hospital accommodations were provided for abnormal cases. Arrangements were made for the prompt isolation of cases of puerperal pyrexia. An agreement was made with the British Medical Association for the domiciliary treatment of evacuated children. The Medical Research Council organized two central and twenty-three subsidiary laboratories to augment existing facilities. In many areas water supplies, sewerage and drainage were organized.

Of the evacuable population only one third was willing to go and on August 31 and the three following days 1,270,000 went to the reception areas. Of this number 166,200 were mothers

or other adults who accompanied 260,300 young children, 12,391 were expectant mothers and 734,883 were school children unaccompanied by their mothers. The remainder, apart from 5,000 blind and crippled persons, were teachers and other helpers. The school population of the reception areas was increased from 1,958,000 to 2,693,000.

The most imminent risk to those evacuated seemed to be the spread of poliomyelitis, diphtheria, scarlet and enteric fevers and dysentery. Diphtheria and scarlet fever had a high incidence in recent years and seemed likely to flare up when town carriers and country susceptibles mixed. But the incidence of infectious diseases in the first four months of the war was remarkably low. It was fortunate that evacuation took place at the beginning of September, one of the most healthful periods of the year as regards droplet infections, such as measles, whooping cough and influenza. The incidence of poliomyelitis was only a third and of diphtheria and scarlet fever only two thirds of that for 1938. The result bore out the soundness of the policy of dispersal in billets. All previous experience showed that concentration of children in camps would have given much less satisfactory results as regards infectious diseases.

Fatal Mercurial Poisoning After Cystoscopy

From the London Hospital Mr. B. H. Page and Mr. Clifford Wilson report in the *Lancet* three cases of fatal mercurial poisoning after cystoscopy, in which mercuric oxycyanide was used. Two of the cases occurred in 1938 and it was these which suggested the cause of death in the other, which occurred in 1935. The symptoms are illustrated by the following case: A man aged 58 complained of abdominal pain and difficulty in micturition. A vesical calculus had been removed five years before. Cystoscopy was performed under local anesthesia and the bladder was found normal except for fine trabeculation. From 8 to 10 ounces (about 250 cc.) of a 1:4,000 solution of mercuric oxycyanide was run into the bladder and left there. Twenty-four hours later the patient was admitted to the hospital with abdominal pain and inability to pass urine. He passed 4 ounces (120 cc.) of dark colored urine three hours after the cystoscopy, after which he was completely unable to micturate. He was in considerable distress with sunken cheeks and a dry furred tongue, but the temperature was normal. There were lower abdominal distention and some tenderness in the hypogastrium. Catheterization yielded 18 ounces (530 cc.) of blood stained urine. Vomiting, bloody diarrhea and suppression of urine followed. The blood urea rose to 600 mg. per hundred cubic centimeters of blood and he died on the thirteenth day. The necropsy showed ulcers in the bladder and colon and cloudy swelling of the kidneys. Mercurial solutions are widely used in cystoscopy and at the London Hospital extend back thirty years. Poisoning from their use appears to be extremely rare, but it is possible that instances have escaped recognition. Other patients were examined cystoscopically at the London Hospital on the same day and with the use of the same solution with no ill effects observed. Page and Wilson suggest that in their cases idiosyncrasy to the drug, possibly combined with abnormal retention and absorption, may have caused the fatalities. Whether this was so or not, there is no doubt that the use of mercuric oxycyanide solution in cystoscopy is dangerous.

The Effects on the Ears of Flying

Medical officers are studying the effects of war flying on the ears of pilots. Recent experiences show that modern high performance airplanes, with their capacity for fast climbing and fast diving, subject the ears of pilots to considerable strain. Those who are suffering from colds and make a high speed climb on interception duty may contract tympanic trouble, and methods for their protection are being considered. In the large bombing airplanes long periods of flying in intense cold have

been found to affect the ears of some of the crew. Also the noise of the engines may reduce their staying powers. Methods of silencing have been developed for civil as well as military machines.

PARIS

(From Our Regular Correspondent)

April 20, 1940.

International Medical Relations

The Association for the Development of Medical Relations recently held its annual meeting with Professor Tiffeneau, dean of the Faculty of Medicine of Paris, presiding. The chairman's address included the following statements: Persecutions, deportations, executions and brutal force cannot enslave thought. International cooperation in science as in all other activities implies confidence and good faith, qualities now undermined by unbridled propaganda, threats and treachery. The forces of destruction must be challenged by the forces of creative activity. French education needs ceaselessly to be improved and the doors of French hospitals and laboratories need to be widely opened. Paris has remained a center which attracts many. Not only exiled physicians and educators but many others desiring to work in an atmosphere of freedom have enrolled to continue their studies; also prominent foreigners have come to teach. On the other hand, France has sent its medical representatives into foreign countries, particularly into Latin America, with advantages to both sides. Professor Peck, the speaker said, visited Paris during the past year with the members of the International Postgraduate Assembly of North America, as well as another distinguished group of American physicians directed by Dr. Thomas D. Walker. The association had been founded in 1919 with the presence of many American physicians and counted many members in all countries. In 1926, when a French-Japanese center was founded in Tokyo, a representative of the medical profession was requested by the Japanese government. The relations thus established proved remarkably satisfactory. Since physicians in all countries have the same objective, namely to know truth in order to do good, and since medicine knows no political or ideologic frontiers, there is a pertinence in suggesting that medical attachés be added to the military and consular attachés representing the nation abroad. The speaker also called attention to the fact that Louis Dartigues, one of the founders of the Union médicale latine in 1912 and known and esteemed for his devotion to the idea of a worldwide medical cooperation, recently died.

Carotid Sinus Enervation

The region of the carotid sinus, according to a recent paper of Lucien Léger, is not a simple vascular bifurcation. It is, above all, the point of departure for a series of reflexes with neurovegetative repercussions. Tschermak's test disclosed some of them, especially those related to the system that regulates blood pressure. The ends of the sinus nerve within the carotid gland are endowed with a chemical sensitivity which Dautrebande succeeded in dissociating from sensitivity to mechanical stimuli. The carotid gland seems to possess an endocrine function not yet sufficiently defined. Lauwers had shown that the favorable results obtained in epilepsy by surgical intervention on the carotid sinus depended more on the site where intervention occurred than on its extent. His conclusions were that intervention should not be directed to the walls of the artery but should endeavor to suppress directly the nerve that connects the carotid sinus with the neural axis. From this idea had sprung several technics for the ablation of the carotid gland. The surgical problem consisted in avoiding injury to the arterial bifurcation and to the carotid gland or its vessels. Lauwers also combined sections of the sinus nerve and that of the external carotid with ablation of the carotid gland in order to facili-

tate access to the sinus and to increase simultaneously the output of the two internal carotid nerves.

Léger, however, rejects the section of the carotid nerve, recently proposed by Cordier and Coulouma, as complex and perhaps illusory. He performs the enervation of the sinus nerve at the point where the nerve joins the bifurcation and not at some distance. He rejects chloroform and accepts ether but prefers local anesthesia. It is mandatory to infiltrate the outer carotid coat and the tissue comprised within the vascular carotid bifurcation with a procaine hydrochloride solution free from epinephrine. It is better to operate twice if a bilateral operation is involved. A good test of the success of the enervation is the hemorrhage induced by the section of the artery of the carotid gland. Additional tests consist in histologic controls and in examining digitally the sensitivity of the tissues to mechanical stimuli. Ablation of the carotid gland carries with it only insignificant and temporary modifications of arterial tension, but the danger of syncope is present. This can be prevented only by extreme operative care and ample infiltrations of anesthesia. This operation is indicated especially in epilepsy, also in transitory cerebral anemia attended by convulsive crises. Léger's statistics include eighty-two cases with fifteen cures (18.7 per cent) observed for at least ten years, twenty-three improvements (26.2 per cent), forty-three failures (53.9 per cent) and one death (1.2 per cent).

Death of Eugène Apert

Dr. Eugène Apert, a physician known for his contributions to children's and hereditary diseases, died at an advanced age.

BERLIN

(From Our Regular Correspondent)

April 12, 1940.

Medicine on Wheels for Rural Communities

In the Danube region formerly belonging to Austria, a so-called health wagon has been put into use among the farming communities. It consists of an automobile in which the rear seats have been removed and a medicine chest built in containing medical instruments, a scale for weighing children and a card index of the mothers and children in the various villages. The physician is his own chauffeur. He is accompanied by a social welfare nurse. The service cares for infants and preschool children and offers advice to mothers similar to that given in maternity and children's welfare stations in cities. Children receive medical care from the time they are born to the fourteenth year. Particular attention is paid to rickets and digestive disturbances. The work is done in close cooperation with the physicians and hospitals of the district. Similar health vehicles are planned for other Austrian districts. The villages and settlements are visited in regular rotation, about every two weeks on the same day. The medical service is free.

Psychopathologic War Reactions

Recently Dr. F. G. von Stockert reported to the medical society of Frankfurt on the Main observations made in the psychiatric ward of the military garrison of Frankfurt of the first 100 patients received in the first two months of the war. He compared these observations with those made in peace times and in 1914. Fewer alcoholic cases were found than in 1914. In the first week of the war two suicides and three deaths from emotional instability, due to anxiety, occurred. Similar psychopathic reactions have frequently been observed during the first few months when recruits were drafted for military training in peace times. Experiences shows that hysterical reactions do not begin to accumulate until after a war has been in progress for some weeks. These hysterias are largely monosymptomatic. In the treatment of these cases it is important to check its evolution; for example, not to allow mutism to become aphonia.

Student Regimentation

Labor conscription has been imposed on all students, effective in 1940, according to Dr. Schedl, national student leader. Until they have completed their education and can be mobilized for active soldiering, students must do duty during the first three semesters in unloading freight trains carrying coal or foodstuffs, in agriculture and forestry, in aviation, in technical emergency aid and so on. Students are formed into groups of from thirty to forty men according to their curriculums and then assigned. These activities obviously have no relation to their studies. It is also emphasized that students will be rated according to their efficiency. "Useless parasites" will be severely dealt with.

Students will also be conscripted for propaganda purposes. Participation in present day political problems is made a student obligation. For that reason students must stress, for the duration of the war, the study of the history and culture of other nations, including England, in order to track down arguments that may be used against England.

Race and Diabetes

H. Lcmser recently compiled comparative data of various countries to determine what part the environment and what part race played in the diabetic picture. Diabetes is found in all races that have been sufficiently studied. Racial differences, no doubt, are determining factors in the incidence of diabetes; for example, in the case of the Jews. But this incidence is not easy of demonstration because of the lack of adequate information regarding environmental and hereditary factors and of non-European races. Of greater significance are the degree of gravity of the disease and its evolution. The former is essentially hereditary and scarcely modifiable by the environment. No definite theories can yet be formulated regarding the effect of race mixture on diabetes.

Additional Regulations on Medicines

According to a new ministerial decree, liver preparations intended to combat pernicious anemia and other diseases may now be dispensed only on prescription. The same regulations apply to benzedrine and its salts and to medicines containing these drugs and to iodine compounds and their preparations, except that a new prescription is required each time. For reasons of economy during the war, tincture of iodine must be doubly diluted with alcohol unless the undiluted form is expressly called for by the physician. The content of boric acid in boric acid ointment has been reduced from 10 per cent to 3 per cent (THE JOURNAL, Dec. 30, 1939, p. 2436).

AUSTRALIA

(From Our Regular Correspondent)

April 9, 1940.

Blood Bank for Overseas Army

The Australian Red Cross Society's gift of a mobile blood bank to the second Australian Imperial Force will enable transfusion to be brought into use nearer the front line and much earlier than ever before. The unit has now been officially handed over to the army. The blood bank, for which £1,550 was collected throughout Australia, comprises a blood transport and refrigerating van which carries eighty bottles of stored blood, and a service vehicle providing facilities for sterilization, distillation of water, repair of transfusion apparatus and the collection of blood from donors.

Early Tuberculosis in Army Recruits

In accordance with the decision of military medical authorities to carry out x-ray examinations of the chests of army recruits who will subsequently proceed overseas, the first batch were examined early this year. The technic employed was to photograph on 35 mm. film the shadow thrown on a fluorescent

screen. Expedition was imperative, and 2,220 were examined in one day with the assistance of fifteen technicians and three record clerks. Examining teams consisting of a physician and a radiologist sat almost continuously for five days. Of a total of 6,775 recruits examined, 0.49 per cent were rejected on evidence obtained by this method. Some doubt was expressed by the radiologists as to whether the 35 mm. film was satisfactory in its present stage of development. Of 6,622 men examined on the miniature film, 365 were classified as doubtful, and when subsequently retaken on 17 by 14 inch film 342 were accepted and twenty-three rejected. Only ten were rejected on the miniature film alone. It was felt that a 4 by 5 inch photograph of the fluoroscopic shadow would be easier to examine, and the large number of retakes on 17 by 14 film would in this way be avoided.

National Health Drive

A health education campaign through press, radio and cinema is part of the plan for a nationwide health drive conceived by the commonwealth and state health authorities in Australia. It has the support of local branches of the British Medical Association. The object of this educative campaign is to inform the public of the preventive and curative medical and health services available. It will also stress the importance to the nation of preserving a high individual health standard. The eradication of tuberculosis by uniform preventive and remedial measures in all states is another aim. Results of the x-ray examination of army recruits had shown that incipient tuberculosis was prevalent among apparently robust men to the alarming extent of one in every 200. This might justify the extension of x-ray examination to make it available also for civilians. Tuberculosis should not be a major health problem in Australia. Australia's sunshine and pleasant weather assist in curing lung disorders. We have adequate supplies of fresh foods, and living conditions are good. With the medical skill and technical equipment now available, there is no reason why an adequate coordinated effort should not stamp out tuberculosis within fifteen years. The problem of venereal disease, the relation of animal diseases to domestic health and the control of various epidemic diseases are included in the plan for coordinated action.

UNIFORM REGISTRATION OF DOCTORS

Complete uniformity in the registration of medical practitioners, nurses, dentists, chemists, optometrists and veterinary surgeons throughout the commonwealth is also proposed. This, however, does not involve any radical alteration in existing conditions. At present conditions of practice in all these professions are similar in all states but uniform regulations would be advantageous.

Marriages

BENJAMIN BRUCE LANGDON, Fayetteville, N. C., to Miss Helen Browne Bennett of Chevy Chase, Md., March 23.

ALBERT V. STOESEER, Minneapolis, to Miss Marie Druckrey of Green Bay, Wis., in Shawano, Wis., April 27.

EDWIN W. ROBERTS, Watertown, N. Y., to Miss Mildred Marie Miller in Philadelphia recently.

JOHN R. TALBOT, Richmond, Va., to Miss Anne Virginia Bellows of White Stone, March 10.

EDWARD STEPHEN STANLEY to Miss Elizabeth Holman, both of San Angelo, Texas, January 18.

BERNARD E. BOLOTOFF, Rockford, Ill., to Miss Mary Younkus in East Chicago, Ind., in March.

WAYNE REESER, Lubbock, Texas, to Miss Evelyn Clayton Craft of Dallas recently.

HUGH H. TROUT JR. to Miss Elizabeth Page Browne, both of Roanoke, Va., April 6.

JOHN B. BOURLAND to Miss Mabel Sanders, both of Dallas, Texas, January 17.

DEATHS

Deaths

George Alder Blumer * Providence, R. I.; University of Pennsylvania Department of Medicine, Philadelphia, 1879; L.R.C.P. and L.R.C.S., Edinburgh, Scotland, 1884; past president of the American Medico-Psychological Association, Boston Society of Psychiatry; member of the Royal Medico-Psychological Association; honorary member of the Society of Mental Medicine of Belgium and the Medico-Psychological Society of Paris; corresponding member of the Society of Psychiatry at the Albany (N. Y.) Medical College; superintendent and formerly lecturer and adjunct professor of insanity at the (N. Y.) State Hospital from 1886 to 1899; superintendent and physician in chief to the Butler Hospital from 1899 to 1922 and since 1922 emeritus superintendent; editor emeritus of the *American Journal of Psychiatry*; aged 82; died, April 25, in the Jane Brown Hospital of arteriosclerosis.

Henry Clarke Coe, Washington, D. C.; Harvard Medical School, Boston, 1881; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1882; M.R.C.S., England, 1884; professor emeritus of gynecology at the New York University College of Medicine, formerly known as the University and Bellevue Hospital Medical College, New York, where he was professor of gynecology from 1896 to 1915; past president of the American Gynecological Society; member of the founders and governor from 1927 to 1930 of the American College of Surgeons; served during the World War; consulting gynecologist to the Bellevue, Woman's, Polyclinic, Beth Israel and Memorial hospitals, New York; co-author with Dr. Keating of "Clinical Gynecology," published in 1894; aged 84; died, April 20, of heart disease and arteriosclerosis.

Thomas P. Farmer * Syracuse, N. Y.; Syracuse University College of Medicine, 1906; member of the House of Delegates of the American Medical Association from 1933 to 1935 and from 1937 to 1939; professor of clinical gynecology; on alma mater; fellow of the American College of Surgeons; on the staffs of the Syracuse Memorial Hospital, St. Joseph's Hospital, Syracuse Free Dispensary and the Syracuse Psychopathic Hospital; at one time health officer; aged 56; died, April 12, of carcinoma of the axilla.

Henrietta Tucker Tanner, Philadelphia; Bennett College of Eclectic Medicine and Surgery, Chicago, 1898; Woman's Medical College of Pennsylvania, Philadelphia, 1922; member of the Medical Society of the State of Pennsylvania; at various times on the staffs of the Northwestern General Hospital, Woman's Hospital and the Germantown Hospital; aged 63; died, March 9, of coronary occlusion.

Laurence James Dervin, Somerville, Mass.; Ludwig-Maximilians-Universität Medizinische Fakultät, München, Bavaria, Germany, 1903; member of the Massachusetts Medical Society and the New England Pediatric Society; formerly teaching assistant in pediatrics at the Tufts College Medical School, Boston; aged 63; died, March 30, in the Somerville (Mass.) Hospital of heart disease.

John M. Quigley, Clearfield, Pa.; Baltimore Medical College, 1898; member of the Medical Society of the State of Pennsylvania; past president and secretary of the Clearfield County Medical Society; for many years medical examiner of the public schools; formerly president of the board of health of Clearfield; on the courtesy staff of the Clearfield Hospital; aged 65; died, March 17.

Nelson Borst, Poughkeepsie, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1890; member of the Medical Society of the State of New York; formerly member of the board of health and school board; consulting physician to the Vassar Brothers Hospital and St. Francis Hospital; aged 83; died, March 28, in Miami, Fla., of myocarditis.

Charles Edgar Chandler, Hamilton, Texas; Memphis (Tenn.) Hospital Medical College, 1908; member of the State Medical Association of Texas; served during the World War; city health officer; formerly county health officer; for many years member of the school board; medical superintendent of the Hamilton Sanitarium; aged 54; died, March 26, of coronary occlusion.

Carl Kurtz, Los Angeles; Bellevue Hospital Medical College, New York, 1889; fellow of the American College of Surgeons; at one time professor of gynecology at the University

of Southern California School of Medicine; formerly member of the board of education and board of health; aged 71; died, March 2, in the California Hospital of chronic myocarditis.

John Newton Boyce, Poughkeepsie, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; member of the Medical Society of the State of New York; veteran of the Spanish-American and World wars; on the staff of the Vassar Brothers Hospital; aged 66; died, March 29, of coronary thrombosis.

Thomas Tweed Warham * Minneapolis; Minneapolis College of Physicians and Surgeons, medical department of Hamline University, 1897; an Affiliate Fellow of the American Medical Association; formerly county physician; aged 73; died, March 27, of coronary sclerosis, diabetes mellitus and chronic pulmonary tuberculosis.

Frederic Purdy Hollister, Scranton, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1899; member of the Medical Society of the State of Pennsylvania; past president of the Lackawanna County Medical Society; on the staff of the Scranton State Hospital; aged 67; died, March 26, of angina pectoris.

Clifford James Ulshafer * Shenandoah, Pa.; Temple University School of Medicine, Philadelphia, 1930; fellow of the American College of Surgeons; surgeon in chief and chief of the staff of the Locust Mountain State Hospital; aged 38; died, March 1, in the Temple University Hospital, Philadelphia, of pneumonia.

Raphael Frederick Medrick, Port Jervis, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the Medical Society of the State of New York; on the staff of the Deerpark Hospital, where he died, March 21, of chronic nephritis and hypertrophy of the prostate.

Leonard Ezra Curtice, Buffalo, N. Y.; Niagara University Medical Department, Buffalo, 1897; member of the Medical Society of the State of New York; on the staff of the Millard Fillmore Hospital; aged 71; died, March 30, in the Buffalo General Hospital of coronary occlusion.

William Angelo Sparks, Birmingham, Ala.; Medical College of Alabama, Mobile, 1905; member of the Medical Association of the State of Alabama; veteran of the Spanish-American War; aged 64; died, March 29, in the Veterans Administration Facility, Tuscaloosa.

Horace Edmund Schlemm, Long Beach, Calif.; Jefferson Medical College of Philadelphia, 1886; at one time a member of the school board of Reading, Pa.; formerly on the staff of the Reading (Pa.) Hospital; aged 80; died, March 12, of cerebral hemorrhage.

Olive Whitney Wheaton, Huntington, N. Y.; Cornell University Medical College, New York, 1928; member of the Medical Society of the State of New York; on the staff of the Huntington Hospital; aged 43; died, March 2, of a streptococcal infection.

Joseph Arthur Collie, Pasadena, Calif.; Northwestern University Medical School, Chicago, 1898; for many years resident physician at the Las Encinas Sanitarium; veteran of the Spanish-American and World wars; aged 74; died, March 5, of military tuberculosis.

Willis Johnson Middleton, Acton, Mass.; Tufts College Medical School, Boston, 1901; assistant in anatomy at his alma mater from 1902 to 1905; for many years on the staff of the Quincy (Mass.) Hospital; aged 71; died, March 14, of heart disease.

Wallace Harden Smith, Natchez, Miss.; University of Tennessee College of Medicine, Memphis, 1929; member of the Mississippi State Medical Association; on the staff of the Natchez Sanitarium; aged 34; died, March 24, of anaphylactic shock.

Byron O. Nobles, Milwaukee; Northwestern University Medical School, Chicago, 1893; at one time professor of obstetrics at the Milwaukee Medical College; aged 76; died, March 23, of chronic myocarditis, arteriosclerosis and broncho-asthma.

Charles Augustus Orr, Excelsior Springs, Mo.; National University of Arts and Sciences Medical Department, St. Louis, 1913; member of the Missouri State Medical Association; aged 67; died, March 11, in Knoxville, Iowa, of duodenal ulcer.

George Waldo Burgess, Guerneville, Calif.; Cooper Medical College, San Francisco, 1895; veteran of the Spanish-American War; aged 70; died, March 7, in the Southern Pacific General Hospital, San Francisco, of carcinomatosis.

John Anderson Bowles, Tacoma, Wash.; Washington University School of Medicine, St. Louis, 1907; member of the Washington State Medical Association; served during the World War; aged 58; died, February 2, of a broken back.

Richard Coleman Ditto, Oakville, Iowa; Keokuk Medical College, College of Physicians and Surgeons, 1901; member of the Iowa State Medical Society; aged 66; died, March 28, in the Burlington (Iowa) Hospital of myocarditis.

Forster Hanson Smith, Lowell, Mass.; Harvard Medical School, Boston, 1902; formerly superintendent of the Lowell Tuberculosis Hospital; aged 62; died, March 17, of wounds of the throat and wrist self inflicted with a razor.

Foster Harris Kennedy, Wellsboro, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1911; member of the Medical Society of the State of Pennsylvania; aged 54; died, March 9, of pulmonary embolism.

Samuel R. Phillips, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1905; member of the Medical Society of the State of Pennsylvania; aged 57; died, March 22, of coronary thrombosis and diabetes mellitus.

Sidney Archer Lord, Boston; Harvard Medical School, Boston, 1894; member of the Massachusetts Medical Society; formerly on the staff of the Massachusetts General Hospital; aged 70; died, March 30, of pneumonia.

Solomon P. Hakes * Tioga, Pa.; University of the City of New York Medical Department, 1888; formerly secretary of the Tioga County Medical Society; bank president; aged 78; died, March 14, of arteriosclerosis.

James Wooten Smith, Poth, Texas; Medical College of Virginia, Richmond, 1901; member of the State Medical Association of Texas; aged 60; died, February 25, of injuries received in an automobile accident.

Alvin Joseph Brah * Milwaukee; Wisconsin College of Physicians and Surgeons, Milwaukee, 1908; on the staff of St. Joseph's Hospital; aged 53; died, March 26, of chronic valvular heart disease and myocarditis.

Mary Forrester Hobart, Needham, Mass.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1884; aged 88; died, March 21, of uremia due to cardiorenal degeneration.

Archibald Carter Long, Sheridan, Mo.; Ensworth Medical College, St. Joseph, 1900; aged 70; died, March 28, in the Missouri Methodist Hospital, St. Joseph, of pulmonary edema and arteriosclerotic heart disease.

Henry David Hully, Griswold, Iowa; University of Nebraska College of Medicine, Omaha, 1902; member of the Iowa State Medical Society; aged 68; died, March 23, of organic heart disease.

John Daniel Hare, Reedley, Calif.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1890; aged 82; died, February 3, of chronic cystitis, retention of urine and heart disease.

Jean Harris Whitney Morse, Redwood Falls, Minn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1897; aged 67; died, March 27, of cerebral hemorrhage.

Anna Samnilovna Wilner, Rockaway Beach, N. Y.; Woman's Medical College of the New York Infirmary for Women and Children, New York, 1895; aged 66; died, February 9.

Elmer Howard Hankey, Pittsburgh; College of Physicians and Surgeons, Baltimore, 1914; aged 51; died in March in the Western Pennsylvania Hospital of cirrhosis of the liver.

James M. Gober, Beaumont, Texas; Kentucky School of Medicine, Louisville, 1894; aged 74; died, March 21, in St. Therese Hospital of injuries received in an automobile accident.

John George McFadden, Loveland, Colo.; Western Reserve University Medical Department, Cleveland, 1894; aged 70; died, March 4, of carcinoma of the prostate and uremia.

Edith Sturges Heller, West Hartford, Conn.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1894; aged 73; died, February 29, of cerebral hemorrhage.

Thomas Jefferson Turpin, Chihuahua, Mexico; Kentucky School of Medicine, Louisville, 1869; Jefferson Medical College of Philadelphia, 1870; aged 92; died, March 5, of senility.

Clarence Eugene Hight, Pasadena, Calif.; Medical School of Maine, Portland, 1900; served during the World War; aged 65; died, March 15, of rheumatic heart disease.

Monroe J. Polk, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; died, March 4, of coronary thrombosis.

William Lewis Stephens, Meridian, Calif.; Eclectic Medical Institute, Cincinnati, 1901; formerly county health officer; aged 67; died, March 18, of cerebral hemorrhage.

Houston E. Snyder, Glens Ferry, Idaho; Western Eclectic College of Medicine and Surgery, Kansas City, Kan., 1909; aged 56; died, March 26, of heart disease.

Denis Joseph McMahon, Breckenridge, Minn.; College of Physicians and Surgeons, Keokuk, Iowa, 1894; aged 70; died, March 12, of carcinoma of the throat.

Herbert R. Flint, Hornell, N. Y.; University of Buffalo School of Medicine, 1882; for many years health officer; aged 86; died, March 28, of heart disease.

Herbert Chester Thomas, Altoona, Pa.; Jefferson Medical College of Philadelphia, 1915; aged 48; died, March 15, in the Mercy Hospital of osteomyelitis.

John Kercher, Chicago; Chicago Medical College, 1890; member of the Illinois State Medical Society; aged 77; died, March 20, of arteriosclerosis.

Stephen Edwin Peters * Masontown, Pa.; Chicago College of Medicine and Surgery, 1909; aged 56; died, March 13, of coronary artery occlusion.

Charles Abram Bozarth, Mason City, Iowa; Hahnemann Medical College and Hospital, Chicago, 1886; aged 86; died, March 28, of myocarditis.

Henry Beier, Huntington Park, Calif.; St. Louis University School of Medicine, 1918; aged 46; died, February 23, of coronary thrombosis.

James Henry Kelley, Flemingsburg, Ky.; Hospital College of Medicine, Louisville, 1892; aged 69; died, March 22, of pernicious anemia.

James A. Printy, Flushing, N. Y.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1882; aged 85; died, February 12.

Edward Lorne McIntyre, High Prairie, Alta., Canada; University of Toronto Faculty of Medicine, 1911; aged 53; died, February 1.

Thomas Erlin Kaiser, Oshawa, Ont., Canada; Victoria University Medical Department, Coburg, 1890; aged 76; died, February 29.

Henry W. Coffin, Glens Falls, N. Y.; New York Homeopathic Medical College, New York, 1881; aged 80; died, February 17.

James Mitchell Nairn, Toronto, Ont., Canada; Victoria University Medical Department, Coburg, 1886; aged 81; died, February 12.

Ernest Wilson McNiece, Aylmer (West) Ont.; Western University Faculty of Medicine, London, 1918; aged 49; died, January 20.

Paul Ewert, Golden, B. C., Canada; McGill University Faculty of Medicine, Montreal, Que., 1912; aged 56; died, February 4.

James Robertson, Montreal, Que., Canada; Hahnemann Medical College and Hospital, Chicago, 1910; aged 62; died, February 5.

Moses Sylvester Howell, Greenville, Texas; University of Georgia Medical Department, Augusta, 1885; aged 77; died, March 8.

Jacob Louis Rubinstein * New York; University of Maryland School of Medicine, Baltimore, 1904; aged 56; died, February 27.

Jesse Sturgeon, Salem, Ohio; Bellevue Hospital Medical College, New York, 1878; aged 86; died, March 13, of pneumonia.

Clyde Leverne Gillam, Rawlins, Wyo.; Marion-Sims College of Medicine, St. Louis, 1893; aged 67; died, February 28.

Edmund Sanford Young, Boston; Long Island College Hospital, Brooklyn, 1891; aged 84; died, January 20.

William Elliott Bruce, Cambridge, Ohio; Medical College of Ohio, Cincinnati, 1889; aged 78; died, February 24.

Minnie Bell Chunn, Electra, Texas; Gate City Medical College, Dallas, 1907; aged 64; died, February 9.

William Gaylor, Jellico, Tenn.; Tennessee Medical College, Knoxville, 1893; aged 73; died, March 13, of chronic nephritis.

Erastus Robinson, Shandon, Ohio; Miami Medical College, Cincinnati, 1876; aged 87; died, March 10, of senility.

George Aloysius Murray, Boston; Harvard Medical School, Boston, 1915; aged 55; died, February 21.

Luther R. Burke, Crowder, Miss. (licensed in Mississippi in 1911); aged 66; died, January 17.

Correspondence

PULMONARY EMBOLISM FOLLOWING THE INJECTION TREATMENT OF VARICOSE VEINS

To the Editor:—The unprejudiced reader of Dean and Dulin's paper "Pulmonary Embolism Following the Injection Treatment of Varicose Veins" (*THE JOURNAL*, April 6, p. 1344) can easily get the impression that the treatment of varicose veins by injections is not as safe as pictured by "numerous authors" who "report a low incidence of complications following the injection therapy of varicose veins," that "the dangers of this procedure are greater than is usually reported" and that high ligation or other surgical procedure reduces fatal embolism. Drs. Dean and Dulin base their conclusions on their experience with two fatal cases among 600 cases treated by injection; they imply that deadly embolism might have been avoided by a proper treatment explained in their conclusions 2, 3, 4, 5 and 6. The physician who wants to treat varicose veins or has to recommend a certain procedure should get an impartial picture of the value or disadvantage of the different methods. This picture could have been obtained here if, besides the fact of "low incidence of serious complications following the injection therapy of varicose veins," the observations and conclusions of the authors and papers cited would have been reported. Let me examine what they say:

According to Westerborn's Swedish statistics, the only ones available which differentiate between treatment of varicose veins by (a) different operations, (b) high ligation and consecutive injection and (c) injection alone, the following percentages resulted in deadly embolism: Of 6,994 cases in which operation was done eighteen, or 0.26 per cent, were fatal; of 1,200 cases in which high ligation of the saphenous vein and retrograde injection were done four, or 0.33 per cent, were fatal, and of 30,000 cases in which injection alone was done eleven, or 0.036 per cent, were fatal. These statistics show a ten times higher mortality rate in cases of ligation than in cases of injection.

Kettel says in his cited paper that the extremely low mortality rate in cases treated by injection can be further reduced by proper precautions. With regard to the high ligation and retrograde injection treatment of varicose veins, he states that the mortality rises up to from 0.5 to 1 per cent, citing Berntsen, Kilbourne, Laqua, Reichel and others. He wrote "The majority of the authors [Meissen, Kilbourne, Fraenkel, Gruca, Baur, Vigyázó] reject the combined treatment by high ligation and injection."

Probststein, reporting three nonfatal cases of embolism of his own observation, quotes in the cited paper 120,000 injections of varicose veins in 15,000 consecutive cases observed by Sicard and Gaugier without a single mortality.

Silverman wrote "A search of the literature has revealed a total of only nineteen cases of embolism following in hundreds of thousands of cases."

Kilbourne reports that he did not have a single death in his clinic among 20,000 injections of varicose veins. He wrote about the high ligation "This simple ligation has its disadvantages. Ligation may cause a funnel-shaped blind pocket in the vein proximal to the ligature in which the blood stagnates, allowing a thrombus to form, and this thrombus is not well attached to the vein wall as is the firmly inrooted thrombus formed by injection of highly irritating solutions. A mortality rate results which I have shown is 0.5 per cent in larger series. This is not inconsiderable in such a small operation." He further states that he ligates "only occasionally giant veins which resist the sclerosing effect of injection." In the majority of cases of giant veins he prefers not to ligate.

In consideration of world literature, which to a large extent rejects the surgical treatment of varicose veins, and in view of the impressive statistics, one should be careful in recommending a risky method, especially as routine procedure. Reports from other authors are on hand regarding successful treatment of varicose veins by high ligation and retrograde injection. The number of such cases is still small. Surgeons convinced of the superiority of the surgical treatment over the injection treatment may continue to treat their patients with surgical methods. They should publish both their good results and their failures. In my opinion (*M. Rec.* 149:169 [March 1] 1939) embolism in the injection treatment of varicose veins can be reduced to an insignificant minimum. Effective and safe treatment of varicose veins and their sequelae requires experience, a proper technic and a suitable solution (*M. Rec.* 147:307 [April 6] 1938; *Arch. Dermat. & Syph.* 41:530 [March] 1940).

LUDWIG ISAAK, M.D., New York.

STOMACH LAVAGE IN TUBERCULOSIS

To the Editor:—In *THE JOURNAL*, April 13, page 1478, Dr. Kantor registered a complaint that workers in general, and we in particular (Stadnichenko, Cohen and Sweany: Stomach Lavage in the Diagnosis and Control of Treatment of Tuberculosis, *ibid.*, February 24, p. 634), did not give credit to Dr. Levy and himself for their work on tubercle bacilli in stomach contents. In 1915 Levy and Kantor (Tubercle Bacilli in Stomach Contents, *Arch. Diagnosis* 8:154 [April] 1915), seventeen years after the original work of Meunier was published (*Bacilloscopie des crachats extraits de l'estomac pour le diagnostic de la tuberculose pulmonaire de l'enfant, Presse méd.* 2:81, 1898), observed tubercle bacilli in the gastric contents of a tuberculous patient and "succeeded in demonstrating the organisms in this fashion in two other cases." No history or x-ray, clinical and laboratory examinations were mentioned in the three cases other than a mere mention of the tubercle bacilli. Even the ages of these patients are not given. For the latter reason alone, if for no other, we cannot agree with Kantor that "Prof. I. H. Levy is entitled to full credit for the idea" of reporting results on adults. Their observation might have been of interest to them, but their report did not contribute to the scientific knowledge of tuberculosis.

HENRY C. SWEANY, M.D., Chicago.

PEDIATRIC EMERGENCIES

To the Editor:—I have always had a great deal of regard for the writings of Dr. Joseph Brennemann. However, I am constrained to take exception to an opinion expressed in a recent special article, "Pediatric Emergencies" (*THE JOURNAL*, March 16, p. 956). In discussing the treatment of congenital atresia of the esophagus, Dr. Brennemann states "No child has ever lived, and with the consent of the parents one is justified in letting the child die without treatment." Granted that the prognosis is nil in these cases, that the posterior mediastinum is *terra incognita* as far as the surgeon is concerned and that any procedure in the posterior mediastinum is attended with formidable obstacles, nevertheless an attitude such as "letting the child die" has a defeatist and nonprogressive ring.

There are many procedures carried out at present which only fifty years ago would have appeared to be impossible. Practically every part of the human body has become by degrees and improvements in technic amenable to surgery—the abdomen, the brain, the vascular system, the nervous system, the lungs, the heart and why not finally that hidden area the posterior mediastinum?

Our task as physicians is to strive to maintain life against all odds and to aim at perfection in our work and nothing

short of perfection. If something appears hopeless and devoid of solution now, it may not be so in the future. There are too many such examples in the history of all sciences to enumerate.

MICHAEL A. BRESCIA, M.D., Queens, N. Y.

[Dr. Brennemann replies:]

To the Editor:—At the time my paper on pediatric emergencies was written, to my knowledge no child with congenital atresia had ever lived, and the duration of life was usually shortened by operation. On a recent trip to Minneapolis I saw, however, a baby that had been operated on three months before and was still living. In that case a gastrostomy had been done and a catheter had been passed some little distance beyond the pylorus, followed by a tying off of the lower end of the esophagus near the bifurcation of the trachea. I quite agree with Dr. Brescia that "our task as physicians is to strive to maintain life against all odds and to aim at perfection in our work and nothing short of perfection." Since the child on whom the operation I have just spoken of was performed may live for years and since an artificial esophagus can then be built, there is at least a hope that the child may live for a long time. There is probably no hope of ever connecting the upper and lower ends of the esophagus, as the lower end is usually very thin and atrophic. However, I quite agree, after seeing this child, that one should operate with the technic employed in this case or with some other procedure.

JOSEPH BRENNEMANN, M.D., Chicago.

INHERITANCE OF ANATOMIC DEFECTS

To the Editor:—Anent the question of inheritance of anatomic defects, I suppose that we must go as far back as Sir Oliver Lodge, who said that when an organism is developed it proceeds to run down like a clock as its fund or protoplasmic energy is expended. He referred to species. Weismann is not commonly quoted as reporting Lamarckian ideas, but the tendency toward degeneration may be passed on nevertheless. In a case in which a fortune depended on the bearing of a son, I operated on a patient in search for causes of sterility and found closed oviducts as a congenital condition. On one side I folded up the oviduct so that the fimbriated end split open longitudinally could be grafted on a part of an opened oviduct in or part of the lumen near the uterus. This was a success as far as securing pregnancy was concerned, but when the child was born its esophagus opened into the trachea. When nature plans degeneration of a strain, persistence of the tendency may remain if not transmission of a particular form of degeneration.

ROBERT T. MORRIS, M.D., Stamford, Conn.

AIR EMBOLISM

To the Editor:—In THE JOURNAL of February 24 Dr. H. M. Weyrauch Jr. and Drs. F. B. Walsh and H. K. Goldberg report instances of air embolism which were not immediately fatal. It is precisely in these circumstances that the inhalation of 100 per cent oxygen is indicated for the rapid absorption of the nitrogen blocking the arteries and capillaries. This should serve to restore function more quickly and perhaps avert death. The basis for this view can be found in the literature on the modern treatment of caisson disease and in the following articles:

- Fine, Jacob; Frehling, Stanley, and Starr, Arnold: Experimental Observations on Effect of 95 per Cent Oxygen on Absorption of Air from Body Tissues, *J. Thoracic Surg.* 4: 635 (Aug.) 1935.
Schwab, R. S.; Fine, Jacob, and Mixter, W. J.: Reduction of Post-encephalographic Symptoms by Inhalation of 95 per Cent Oxygen, *Arch. Neurol. & Psychiat.* 37: 1271 (June) 1937.
Fine, Jacob; Hermanson, Louis, and Frehling, Stanley: Further Clinical Experiences with 95 per Cent Oxygen for Absorption of Air from Body Tissues, *Ann. Surg.* 107: 1 (Jan.) 1938.

JACOB FINE, M.D., Boston.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

HAZARDS FROM COMPETITIVE SPORTS

To the Editor:—How many deaths and how many serious injuries occur annually in connection with high school football games, and how many in connection with college football games? How do these fatal and non-fatal accident rates in football compare with corresponding rates in other popular games, such as baseball; and how with allegedly dangerous sports, such as sail plane gliding? (Figures for the last point presumably are to be found in German sport or military medical publications.) Comparison with other fighting games, such as rugby, hockey, ice hockey, polo, soccer and the English football would also be welcome.

M.D., Texas.

ANSWER.—According to statistics for the nine years from 1931 to 1939 compiled by Dr. Floyd R. Eastwood, of Purdue University, there was a total of twenty-six deaths in nine years directly attributable to college football, and of 107 deaths attributable to high school football. The number is steadily diminishing. In 1931 there were eight college deaths, twelve high school; in 1939 three college deaths, seven high school. This gives a 63.6 per cent decrease in the number of fatalities directly associated with football. As the estimated number exposed to football for the nine years was 616,000 high school and 65,690 college players, this gives an incidence of deaths per hundred thousand of 1.86 and 4.37 respectively. The motor vehicle rate is 32.8 per hundred thousand for the same age group.

The injuries in high school football were 90.3 per thousand in 1935 (Eastwood).

In a review of a five year period from 1930 to 1934 at Northwestern University by Dr. Marcus H. Hobart there were 368 football injuries, seventy wrestling, fifty basketball, thirty-five baseball and thirty track. As nearly five or six times as many play football, the percentage of danger is about the same as in other sports. These statistics probably give an indication of the general average.

Statistics for allegedly dangerous sports as sail plane gliding as "presumably found in German sport or military medical publications" were not found, nor were those of rugby, hockey, soccer and English football.

LARGE CODEINE DOSAGE

To the Editor:—Would 1 grain (0.065 Gm.) of codeine sulfate every half hour for eight consecutive doses (8 grains [0.5 Gm.] in four hours) be considered a lethal dose for an average normal woman? What is considered a minimal lethal dose of codeine for an adult, if there is any such thing? I am not including drug addicts or people who have been in the habit of taking narcotics of any kind for some length of time. If a person had taken an overdose of codeine, sufficient to cause death, what would the autopsy show? In a case of this kind, on receipt of such a prescription, what is the medicolegal responsibility of the pharmacist to the physician and to the patient?

M.D., Ohio.

ANSWER.—This dosage of codeine sulfate would not be considered lethal for an average normal woman; a fatal result would be exceptional; indeed, a fairly comprehensive search of reference books fails to reveal any reports of fatal codeine poisoning. Flury and Zangger (Lehrbuech der Toxikologie, Berlin, Julius Springer, 1928, p. 282) state that doses up to 1 Gm. cause inconvenience rather than danger to life. S. Weir Mitchell took 5 grains (0.32 Gm.) without alarming symptoms (Wood, H. C.: Therapeutics: Its Principles and Practice, ed. 11, Philadelphia, J. B. Lippincott Company, 1902, p. 137). The British Pharmaceutical Codex states that "large doses are sometimes given, up to 3 decigrams [5 grains] three times daily." However, the symptoms may be fairly alarming: Lewin (Gifts und Vergiftungen, Berlin, Georg Stilke, 1929, p. 632) cites a case in which "0.8 Gm. resulted in muscular weakness, miosis, vertigo, mild delirium, clonic spasms, fast pulse, then collapse." In another case, cited by Kobert (Intoxikationen, Stuttgart, Ferdinand Enke, 1906, p. 999), 0.5 Gm. (8 grains) produced restlessness, reddening of the skin and conjunctivas, mild muscle twitches, slowed pulse, slow respiration and widely dilated pupils. Recovery resulted after artificial respiration, gastric lavage and analeptics. The mydriasis persisted for several days. Necropsy would presumably show asphyxia. When the dose is unusually large it would be advisable for the pharmacist to check with the physician before delivering the prescription.

BLOOD AND ALBUMIN IN URINE

To the Editor:—Does the occurrence of albumin in a specimen of urine in which blood is found present have any significance as to whether the bleeding is from a surgical lesion in the urinary tract or from a so-called medical nephritis? If it has such significance is there any absolutely positive method of determining whether the albumin is coming from a nephritic process or is merely accompanying the surgical bleeding?

U. S. Hargrove, M.D., Baton Rouge, La.

U. S. Hargrove, M.D., Baton Rouge, La.

ANSWER.—Plasma protein is practically always present in urine containing blood. Hence the occurrence of proteinuria cannot by itself be used to distinguish between medical and surgical diseases of the kidney or lower urinary tract. It is only in case of slight microscopic hematuria due to urinary calculus or other surgical lesions that the ordinary clinical tests for albuminuria may yield a negative result. Under these circumstances persistent slight hematuria without proteinuria speaks strongly against the common medical diseases of the kidney but does not indicate the precise source of the bleeding in the urinary tract.

However, the quantity of protein in the urine is an important factor in the diagnosis. A concentration of 0.2 per cent in ordinary surgical lesions of the kidney is dealing with a value of 0.4 per cent in ordinary medical diseases.

in cases of hematuria, the presence of protein in the urine is an important aid in differential diagnosis. A concentration of 0.2 per cent of protein (by weight) in urine containing little or no gross blood rarely occurs in the ordinary surgical lesions of the urinary tract. When the proteinuria reaches a value of 0.4 or 0.5 per cent the probability is strong that one is dealing with some diffuse renal process or severe circulatory disturbance. In the presence of gross hematuria the protein estimation should be made on the supernatant protein of the centrifuged urine. A little calculation would show that considerable hemorrhage into the urinary tract is required to raise the concentration of plasma protein in the urine to 0.3 or 0.4 per cent. On the other hand, a slight leakage of protein into each or most of the glomeruli capsules can readily result in several grams of protein in the twenty-four hour urine, because of the great number of glomeruli and the inability of the tubules to reabsorb the large protein molecules. Therefore much albuminuria may be present with little or no demonstrable hematuria in diffuse medical lesions of the kidney. Even in focal nephritis there is usually more protein in the urine than one would expect from the amount of blood found. Occasionally, in the subsidence of acute glomerulonephritis, microscopic hematuria may be observed without proteinuria.

There is no single absolutely positive method of differentiating between the albuminurias of medical and surgical renal disease. The presence of erythrocytes and other elements in the urine, the level of renal function as measured by the creatinine clearance, and the course of the disease in

While there is no single absolutely positive method of differentiating between the albuminurias of medical and surgical renal processes, the symptoms, the presence of erythrocytes and other casts in the urinary sediment, the level of renal function and the results of cystoscopy or pyelography should make it possible for the physician to arrive at an accurate diagnosis in nearly all cases.

DIABETES AND HYPERTENSIVE DISEASE

DIABETES AND HYPERTENSIVE DISEASE

The Editor:—A man aged 32, weighing 185 pounds (84 Kg.), 5 feet 10 inches (178 cm.) in height, working underground as a miner, during the post two months noticed that his weight was going up, that his face was becoming bloated and red, that his appetite was large amounts of water, was considerable at night. The last few weeks he has been feeling tired especially at night. He was large and flabby looking, red faced slight headache and weakness. He was extremely nervous and apprehensive. There were several decayed teeth, the blood pressure was 200 systolic, 130 diastolic, and the patellar reflexes were absent. Urinalysis revealed a specific gravity ranging from 1.014 to 1.020, albumin negative, twenty-four hour samples of urine ranging from 10 to 20 Gm., dextrose tolerance test plus costs, a few red cells and no bacteria. The nocturnal tolerance test was fasting 80 mg., first hour 121 mg., second hour 146 mg. and third hour 130 mg. This week. Blood urea nitrogen was 12 mg., blood urea 25.6 mg., and blood uric acid 1.8 mg. Repeated blood counts did not reveal anemia, leukocytosis or any other abnormality. The blood Wassermann reaction was negative. A tentative diagnosis of mild diabetes combined with a nonspecific chronic nephritis was made and the patient was put on a modified diabetic-nephritic diet of 2,500 calories at bed rest with a limitation of sugars and a moderate amount of protein. The blood sugar levels were removed, a preparation of theobromine and phenobarbitol erythrol tetranitrate were used as drugs, and moderate amounts of insulin (20 units daily in divided doses) were given to improve and a slight reaction but the patient does not seem to improve and the blood pressure? Can a diagnosis of diabetes mellitus be made? Can you suggest further treatment? Can the patient do normal work with poor tolerance and a slight reaction? Is the diagnosis correct? Can you suggest further treatment? Can a diagnosis of diabetes mellitus be made? Can you suggest further treatment? Can the patient do normal work with poor tolerance and a slight reaction?

There would seem to be nothing amiss with the clinical symptoms and signs in this case. The clinical symptoms are those of diabetes, although the blood sugar is only slightly elevated.

ANSWER.—There would seem to be nothing amiss with the diagnosis of diabetes in this case. The clinical symptoms and the laboratory observations clearly warrant such a diagnosis. The dextrose tolerance curve is that of diabetes, although not severe. The occurrence of a blood pressure of 200/130 in a 32 year old man is not part of diabetes. This indicates the additional presence of hypertensive disease. The evidence of nephritis

MINOR NOTES

is not good, as cylindruria and hematuria are not infrequently encountered in diabetes. In order to clear up some obscurities in this case one must determine whether any feature of the hypertensive disease might produce glycosuria. First one must consider the possibility of a cerebral hemorrhage in the region of the fourth ventricle. This seems unlikely, as other signs of cerebral hemorrhage are lacking and this glycosuria is persistent. Second, one must consider the presence of an adrenal tumor. Certain adrenal tumors could produce both hypertension and glycosuria. These are rare but certain features of this case arouse suspicion. The easily controlled but persistent hyperglycemia, the rising blood pressure and the hematuria are suggestive circumstances. Such a diagnosis is not easy to confirm. X-ray examination will sometimes reveal the tumor. Pyelograms are sometimes helpful and occasionally the tumors may be palpated.

If these possibilities fail of proof, it would seem wise to treat the case as hypertensive with mild diabetes and not treat the glycosuria with insulin.

AND DEATH

HEXYLRESORCINOL AND DEATH

PINWORMS, HEXYLRESORCINOL AND DEATH

PINWORMS, HEXYLRESORCINOL AND DEATH

To the Editor:—A normal boy aged 4 years in good health had pinworms. Having had no breakfast, at 9 a. m. he received 0.4 Gm. of hexylresorcinol (capriokol). A cleansing soap-suds enema was given and returned with good results. At 10:15 1 pint of hexylresorcinol solution (1:1,000) with 8 ounces of warm water was expelled. At 10:30 the boy complained of epigastric cramps and headache, which quickly became severe. Severe vomiting brought up remains of the medication. Coma and convulsions appeared, which seemed to affect the left side of the body more. The child was immediately hospitalized. On admission he was comatose and pale with frequent severe convulsions of all extremities. The temperature was 97 F., respiratory rate 10, pulse rate 120. The pupils were widely dilated and did not react to light. The right was larger than the left. Both optic disks were blurred. No neck rigidity or Brudzinski sign was present. The adenopathy was present. There were no other positive neurologic phenomena. The blood count on admission was 5,400,000 red blood cells, 105,000 white blood cells, 84 per cent polymorphonuclears, no eosinophils, 12 per cent lymphocytes and 4 per cent monocytes. The Schilling index was not done, but no abnormally early polyporphonuclears were seen. The spinal fluid pressure was increased. The urine was not obtained. Phenobarbital was given hypodermically, either to control convulsions, bromide and chloral hydrate were administered. Gastric lavage was done and magnesium sulfate passed through a stomach tube. Oxygen and intensity. The child then reacted slightly at about 3 p. m. The coma was not as deep and the boy respiration rapid around the bed. The pupils were still dilated and the disks blurred. This condition continued until 6 o'clock (eight hours after onset of symptoms), when the patient vomited blood and passed some blood rectally, developed pulmonary edema and died. Autopsy showed cerebral edema, slight congestion of the mucous membranes of the stomach and upper small intestine and renal congestion. Could you assist me in the solution of the following before? What clinical pictures have presented themselves in the mild and severe forms? How could one have tested sensitivity before treatment? Can hexylresorcinol decompose to form a poisonous by-product? Does the white count of 105,000 point to a sensitivity reaction even though there is absence of eosinophilia? M.D., N.Y.

In answering this inquiry regarding death follow-up of hexylresorcinol in a case of pinworm infestation the signs and symptoms observed, a slowly absorbed, a record

ANSWER.—In answering this inquiry regarding death following the use of hexylresorcinol in a case of pinworm infestation, it is impossible to account for the signs and symptoms observed. Hexylresorcinol is a local irritant, it is slowly absorbed, and about 20 per cent of it is excreted in the urine. No record has been found of systemic poisoning from hexylresorcinol in spite of its having been given in large amounts to many thousands of persons. One would not believe that the child could have died from a gastrointestinal hemorrhage; neither could the child have died from decomposition of hexylresorcinol in the body, as practically all of the hexylresorcinol after oral administration has been accounted for by finding it in the urine and stools. The lower members of any series of phenols may cause convulsions after absorption, but these are not seen with higher members of the series, and in toxicity experiments with hexylresorcinol no convulsions were seen. The dose of hexylresorcinol given to this child is a common therapeutic dose. There is nothing in this case which would indicate intoxication from hexylresorcinol.

The description is read "1 pint of hexylresorcinol solution and 8 ounces of warm water was given as an enema." The commercial S. T. 3 solution is approximately 150 cc. of glycerine per ounce, and the solution given from the pint for the fever would be approximately 150 cc. of glycerine.

As the description is read "1 pint of hexylresorcinol solution (1:1,000) with 8 ounces of warm water was given as an enema." If this hexylresorcinol solution was the commercial S. T. 37, this would have contained approximately 150 cc. of glycerin, which would have caused collapse from local irritation and removal of water, but even this could not account for the fever, white count and convulsions, except that it is well known among pediatricians that any severe poisoning may show a remarkable symptom complex in children.

The cause of death of this child remains unexplained.

PERSISTENT INTERCOSTAL NEURALGIA

To the Editor:—A woman aged 59 has had neuralgia involving the left fifth, sixth, seventh and eighth intercostal nerves since Aug. 6, 1937, at which time the pain set in suddenly. The red and white blood cells and the hemoglobin are normal. The blood Wassermann reaction is negative. Physical examination is entirely negative except for the specified nerves. The patient has received two nerve blocks of the involved nerves with no result. She has also received roentgen therapy, sinusoidal current, thiamin chloride and short wave therapy, without good results. She has had to take from four to six capsules daily containing morphine sulfate or pantopon or dilaudid, plus acetylsalicylic acid, in spite of which it has been necessary to give her from one-fourth to one-half grain morphine sulfate hypodermically two or three times a week. She has not been free from pain since the onset for longer than four days at a time. Two neurosurgeons have felt that direct attack on the involved nerves is indicated. Is there anything else I can offer the patient before subjecting her to this formidable step? Leon A. Frankel, M.D., Philadelphia.

ANSWER.—Neuralgia of the type described is often perplexing to treat; drug treatment usually is ineffective and a large number of such patients eventually seek surgical relief from both the pain and the heavy doses of drugs. Without some such treatment which will, by anatomic interruption, abolish the pain unquestionably, the disturbance may continue unabated for an indefinite time and, since no specific lesion exists, any attempt at direct therapy, other than surgical, is usually futile.

Following the suggestions of Leriche, a procainization of the sympathetic ganglia of the corresponding segments might be attempted. This is a procedure requiring much skill, and an inaccurate injection frequently leads to the opinion that such treatment is without merit. Such an injection failing, and considering the treatments already tried, posterior rhizotomy, sympathetic ramisectomy or even chordotomy (low cervical or high thoracic in this case) are the three surgical measures of most promise. Of these three, chordotomy is the only one which need be considered a "formidable step," and it can be safely done by an experienced neurosurgeon.

INTESTINAL ADHESIONS AND PAIN

To the Editor:—A young married woman has had four laparotomies, the last one a sympathectomy for severe dysmenorrhea. She is now suffering from severe attacks of abdominal pain resulting from what appear to be numerous intestinal adhesions. What form of therapy do you suggest for treating the adhesions and the attacks of pain? M.D., New Jersey.

ANSWER.—This is a difficult problem. One must first be certain that all other causes of abdominal pain have been excluded before the diagnosis of intestinal adhesions is made. The urinary tract should be carefully studied as well as the gallbladder, stomach and duodenum. Diaphragmatic hernia should be excluded. If it seems that intestinal adhesions most likely explain the attacks of pain it would be well to try to take flat x-ray plates of the abdomen in the horizontal and vertical positions to see whether there are single, distended loops. Usually it is unwise to do any operation for adhesions unless frank intestinal obstruction occurs. Occasionally, however, if there is a definite inflated loop which can be identified by x-ray examination at the time of the maximum pain, a minimal type of operation to free the offending adhesions may be of value. In this event it is worth trying to use some amniotic fluid concentrate after the operation.

If operation is not carried out and the pain persists, a mild sedation must be given. It is desirable to avoid narcotics because of the habit-forming tendency.

Finally, one should be sure there is not an improper evaluation of pain because of psychiatric disturbance.

REACTIONS FROM SOLUTIONS USED FOR OBLITERATING VEINS

To the Editor:—I am eager to know whether there is any medical literature supporting the conclusion that erythema multiforme may be caused by the various or any specific chemical used in the injection treatment of hemorrhoids. Guthrie H. Wisener, M.D., Richmond, Ind.

ANSWER.—Sensitization to solutions used for obliterating veins has been observed repeatedly. Apparently Ritchie (*Edinburgh M. J.*, November 1933, p. 157) was the first to call attention to these reactions. He described the following three types: (1) erythematous patches on the skin, (2) gastrointestinal disturbances with abdominal pain and diarrhea appearing shortly after the injections, and (3) pain across the back followed by collapse, cyanosis, fall in blood pressure and temporary loss of consciousness. This severe "nitritoid" reaction may closely resemble pulmonary embolism. The erythematous patches are the most frequent type of sensitization and have been seen after

the use of quinine, salicylates and sodium morrhuate and even after solutions of sugar if they contain nitrogenous impurities. A partial list of references may be consulted:

Dermatitis from Invert Sugar for Varicose Vein Injections, *Queries and Minor Notes, THE JOURNAL*, May 21, 1938, p. 174.

Prayer, L. L., and Becker, S. W.: Sensitization Phenomena Following Use of Sodium Morrhuate, *ibid.*, March 21, 1935, p. 997.

Zimmerman, L. M.: Allergic-like Reactions from Sodium Morrhuate in Obliteration of Varicose Veins, *ibid.*, April 14, 1934, p. 1216.

Lewis, K. M.: Anaphylaxis Due to Sodium Morrhuate, *ibid.*, Oct. 17, 1936, p. 1298.

PSYCHIATRY

To the Editor:—Does psychiatry include the study of criminal psychology, child psychology, correction of wayward adolescence and sexual disturbances besides the study of the insane? How can an individual obtain adequate training in these branches and what are the future possibilities of these branches in the medical field? Will a residency in a state institution give an individual sufficient background to carry on such studies?

M. S. Dudich, M.D., East Bangor, Pa.

ANSWER.—The field of psychiatry should include the study of criminal psychology, the psychology of children, the correction for boys of the wayward adolescence, disturbances of the function of sex and, further, the study of the insane.

Adequate training in these branches should include internal medicine, neurology and psychiatry. To be a psychiatrist of merit requires more than an internship in a state hospital.

The future possibilities in psychiatry are similar to those which existed in surgery when Lister made his first antiseptic spray.

ANIRIDIA

To the Editor:—A white girl baby aged 6 months was brought to me because the mother did not think the child could focus her eyes. The baby is perfectly normal in every respect except for the eyes, the rudimentary iris being represented by a thin black line around the edge of the cornea. There are no corneal opacities and both retinas appear normal. I have been able to find but little in any of my books on aniridia. Please let me know the relative frequency of this condition, the treatment, and the prognosis as to useful eyes in this patient. Any information relative to this condition will be appreciated.

W. Hill McCaslan, M.D., Union Springs, Ala.

ANSWER.—There is an extensive literature dealing with aniridia. It is discussed in the second volume of the *Textbook of Ophthalmology* by Duke-Elder, 1938, page 1298. Other references, possibly not so comprehensive, are to the *Kurzes Handbuch der Ophthalmologie*, by Seefelder, volume 1, page 562; and the *Eye and Its Diseases*, by Eerens, 1936, page 624.

OVERWEIGHT YOUNG GIRL

To the Editor:—A 9 year old girl was brought to me because of overweight and oversize. Her history and examination are negative except for obesity and dorsal pitting of the fingers. The basal metabolic rate taken last year was normal. Her height is 57½ inches (146 cm.) and weight 123¼ pounds (56 Kg.). My diagnosis is prepubertal pituitary obesity. My plan is to give her small doses of thyroid daily and injections of solution of posterior pituitary biweekly. My questions are: Are there any better pituitary extracts for this purpose now on the market? Is twice a week often enough to give the injections or should they be given daily? Norman P. Rindge, M.D., Clinton, Conn.

ANSWER.—The most important therapeutic procedure is the administration of a well balanced weight reducing diet. This should be adequate in everything except calories. It may be supplemented with small doses of desiccated thyroid (as much as 1 grain [0.06 Gm.] of the U. S. P. material daily), but the main problem is dietary. There is no good evidence that solution of posterior pituitary is of value in the treatment of obesity. Moreover, there is no extract of the anterior lobe of the pituitary that is effective in this disorder.

HOLLYHOCK POLLEN INSECT POLLINATED

To the Editor:—Please state specifically whether hollyhock pollen is wind borne or insect borne. I do not find a specific statement about this matter in any book on allergy at my disposal, although the general statement is made that the usual garden flowers produce insect borne pollen, listing rose, sunflower, cosmos, aster, dandelion and goldenrod.

M.D., Kentucky.

ANSWER.—Not only hollyhock but all members of the mallow family are strictly insect pollinated. A reference to three members of this family in the genus *Hibiscus* will be found on page 181 of Scheppegrell's "Asthma and Hay Fever," Philadelphia, Lea & Febiger, 1922.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, May 18, page 2052.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 3. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science*. Tucson, June 18. Sec., Dr. Robert L. Nugent, University of Arizona, Science Hall, Tucson. *Medical*. Phoenix, July 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Medical* (Regular). Little Rock, June 6-7. Sec., Dr. D. L. Owens, Harrison. *Medical* (Eclectic). Little Rock, June 6-7. Sec., Dr. Clarence H. Young, 1415 Main St., Little Rock.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California). Los Angeles, July 15. *Written examination*. San Francisco, June 24-27. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: *Basic Science*. Denver, May 28-29. Sec., Dr. Esther B. Starks, 1459 Ogden St., Denver. *Medical*. Denver, July 2-6. *Applications must be on file not later than June 17*. Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Basic Science*. New Haven, June 8. Chairman State Board of Healing Arts, Dr. Charles M. Bakewell, 1895 Yale Station, New Haven. *Medical*. Hartford, July 9-10. *Endorsement*. Hartford, July 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic*. Derby, July 9-10. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination*. Dover, July 9-11. *Reciprocity*. Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science*. Washington, Oct. 21-22. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 1. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 25-27. Acting Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Powers, 301 State House, Indianapolis.

IOWA: *Medical*. Iowa City, June 4-6. *Basic Science*. Des Moines, July 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 18-19. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

KENTUCKY: Louisville, June 6-8. Sec., Dr. A. T. McCormack, 620 S. Third St., Louisville.

MAINE: Augusta, July 2-3. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical*. Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic*. Baltimore, June 18-19. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 9-11. Sec., Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science*. Minneapolis, June 4-5. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical*. Minneapolis, June 18-20. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MISSOURI: St. Louis, June 6-8. Sec., State Board of Health, Dr. Harry F. Parker, State Capitol Bldg., Jefferson City.

MONTANA: *Reciprocity*. Helena, Sept. 30. *Written*. Helena, Oct. 1-2. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: *Medical*. Omaha, June 12-14. *All applications must be on file 15 days prior to date of examination*. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: *Reciprocity with oral examination*. Aug. 5. Sec., Dr. Fred M. Anderson, 215 N. Carson St., Carson City.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 7-8. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, Albany.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OHIO: Columbus, June 3-6. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 5-6. Sec., Dr. James D. Osborn Jr., Frederick.

OREGON: *Medical*. Portland, June 18-20. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science*. July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: *Written*. Philadelphia and Pittsburgh, July 9-11. *Reside*. Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 338 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 3. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 11-12. Sec., Division of Examination, Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. F. D. Cook, Pierre.

TENNESSEE: Knoxville, Memphis and Nashville, June 14-15. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: San Antonio, June 17-19. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, June 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 18-20. Sec., Dr. J. W. Preston, 30½ Franklin Rd., Roanoke.

WASHINGTON: *Basic Science*. Seattle, July 11-12. *Medical*. Seattle, July 15-17. Sec., Department of Licenses, Mr. Nelson N. Vaughn, Olympia.

WEST VIRGINIA: Huntington, July 1-3. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: *Basic Science*. Milwaukee, June 1. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical*. Milwaukee, June 25-28. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

WYOMING: June 3-4. Sec., Dr. M. C. Keith, Capitol Bldg., Cheyenne.

Wyoming February Report

Dr. M. C. Keith, secretary, Wyoming State Board of Medical Examiners, reports the written examination held at Cheyenne, Feb. 14, 1940. The examination covered twelve subjects and included eighty-two questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Loyola University School of Medicine.....	(1939)*		79.2
Creighton University School of Medicine.....	(1933)		79.1
University of Nebraska College of Medicine.....	(1938)		77.6
Jefferson Medical College of Philadelphia.....	(1938)		78.5

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois.....	(1905)		Illinois

* This applicant has completed four years' medical work and will receive the M.D. degree on completion of internship. License has not been issued.

North Dakota January Report

Dr. G. M. Williamson, secretary, North Dakota State Board of Medical Examiners, reports the written examination held at Grand Forks, Jan. 2-5, 1940. The examination covered thirteen subjects and included 100 questions. An average of 75 per cent was required to pass. Eight candidates were examined, all of whom passed. Two physicians were licensed by reciprocity. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Northwestern University Medical School.....	(1938)		79.6
Rush Medical College	(1937)		84.7
Univ. of Minnesota Med. School (1924) 85, (1929) 80.5, (1939) 78, (1939) 80.5	(1936)		80.4
University of Pennsylvania School of Medicine.....	(1936)		81

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1914)		Illinois
Creighton University School of Medicine.....	(1921)		S. Dakota

Vermont February Examination

Dr. W. Scott Nay, secretary, Vermont State Board of Medical Registration, reports the written examination held at Burlington, Feb. 13-15, 1940. The examination covered twelve subjects and included ninety questions. An average of 75 per cent was required to pass. Four candidates were examined, three of whom passed and one failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Cornell University Medical College.....	(1938)*		86.7
University of Vermont College of Medicine.....	(1939)*		86.2
Medizinische Fakultät der Universität, Wien.....	(1920)*		86.3

School	FAILED	Year Grad.	Number Failed
Universidad Central de España Facultad de Medicina, Madrid	(1933)		1

* Licenses have not been issued.

Book Notices

Essentials of Medical Electricity. By Elkin P. Cumberbatch, M.A., B.M., D.M.R.E., Medical Officer in Charge, Electrical Department, St. Bartholomew's Hospital, London. Eighth edition. Cloth. Price, \$5. Pp. 528, with 162 illustrations. Cleveland, Ohio: Sherwood Press, 1939.

This posthumous volume presents the labors of a student of electrotherapeutics in England and offers a detailed exposition of the diverse indications and technics of electrical procedures in medical practice. The text proper reveals meticulous diction, erudition and authoritative mellowness that become fully substantiated on repeated reading. Cumberbatch's reputation for lucid and painstaking detail may be ascribed to his years of apprenticeship under Sir Lewis Jones, the distinguished pioneer whom he succeeded as ranking officer at St. Bartholomew's Hospital, in a service almost as ancient in electromedical tradition as this oldest of London institutions. His special services in the World War and his succeeding experiences in the subsequent years as instructor and examiner in electrotherapy gave him that further orientation which raised the succeeding editions of this contribution to the most authoritative level on the subject. It is therefore not surprising that the demands for this work have brought about an eighth edition with extensive revision and enlargement which includes a review of electrothermic methods and the mode of action of short wave diathermy. Throughout the twenty-seven chapters one observes that the author first attempts to establish a scientific basis for the many electrotherapeutic agents and methods utilized and then presents the clinical conditions for which they are best indicated. A good third of the book is devoted to the exposition of technical and biophysical problems related to its clinical application. It critically evaluates the electrochemical and physiologic action of the galvanic, faradic, sinusoidal and high frequency currents. Approximately another third is devoted to the application of the direct current to certain maladies by common ion transfer of drugs and the testing for reactions of muscles and nerves under normal and pathologic conditions. Finally, the author discusses the uses of medical and surgical high frequency current and the physical principles underlying the theory and practice of medical electricity. There are appended fifteen plates illustrating motor points of muscles and a workable index. The absence of a bibliography for collateral information demanded by students and critical readers is regrettable for a work that promises to become the classic in its field.

A Doctor's Holiday in Iran. By Rosalie Slaughter Morton, M.D. Foreword by Surgeon-General Hugh S. Cumming (Retired). Cloth. Price, \$3. Pp. 335, with 20 illustrations. New York & London: Funk & Wagnalls Company, 1940.

A metamorphosis has been going on in Persia, now called Iran, since the present shah, Riza Pahlavi, came to the throne about fourteen years ago. The change that is taking place is comparable to the metamorphosis that has occurred in Turkey under the rule of Kemal Pasha. The present shah rose from the ranks and came into this high office after a highly successful and popular service in the army. He is as different from his predecessors as is the new age in Iran from the twenty-five centuries of its history that have preceded him. He has risen through ability from poverty. He has common sense, much intelligence, is democratic, and although a dictator is consistently working toward a democracy. The author decided to go to Persia to observe social changes. Her book is an account of what she observed in traveling about the country, associating with natives in their bazaars and homes. Being a physician, the author was especially interested in medicine. She visited the American Hospital in Teheran, the American Missionary Hospital in Tabriz and the Meshed Hospital near the Afghanistan border. Some of the patients observed are described. Superstition is still broadly extant in Iran. The use of blowing, spitting and stroking to heal the sick are common leftovers from ancient animism, some of which Mohammed incorporated into his teachings. Tiny shells and blue beads are considered especially effective in warding off evil. A charm is thought to be a greater benefit than the reasonable care in the prevention of disease, and yet in the early days there was greater scientific knowledge in Arabia and

Persia than anywhere else in the world. Wars in the sixteenth century retarded scientific progress, and the pharmacopoeias of Persia reverted to the primitive. While Persian doctors centuries ago were among the most notable scholars, in the hands of their followers their teaching became involved with astrology, necromancy and omens and the practice of medicine degenerated into superstition. The author has caught much of the beauty in the art and culture of Iran. Her account will be especially appreciated by any one interested in history and travel.

Sexual Disorders in the Male. By Kenneth Walker, F.R.C.S., Surgeon to the Genito-Urinary Department, Royal Northern Hospital, London, and Eric B. Strauss, D.M., F.R.C.P., Physician for Psychological Medicine, St. Bartholomew's Hospital, London. With a foreword by Sir Walter Langdon-Brown, M.A., M.D., D.Sc. Cloth. Price, \$3. Pp. 248. Baltimore: William Wood & Company, 1939.

This is a work by a urologist and a psychoanalyst. It is practical but unfortunately contains some glaring errors. The authors seem to be well acquainted with similar works by American authors, for they frequently quote from these works. Nevertheless they state in the introduction that "although there are several excellent reference books on sexology, notably those of Havelock Ellis, there exists no practical manual on how to deal with the various forms of sexual disability that are met with in the consulting room." Another statement which is hard to imagine emanating from a urologist is: "Mr. Kenneth Walker has become convinced by clinical experience that something like 90 per cent of sexual disorders in the male are mainly psychological in origin and that the success claimed for surgical procedures in such cases is chiefly due to their suggestive value." If such a statement had come from a psychoanalyst, one would not be surprised, but coming from a urologist and such a prominent and able urologist as Mr. Kenneth Walker it is hard to understand. The book gives much practical and useful information. It points out the importance of interviewing the wife in some cases of impotence. Although this has been emphasized in other works on sexual disorders, it cannot be too often repeated. The authors wisely state that the treatment of sexual inversion by psychoanalysis is unsatisfactory. The portion of the work describing the treatment of masturbation was evidently written by the psychoanalyst and is typical of psychoanalytic conception: "What calls for treatment here is the secondary anxiety arising out of the habit; and it is encouraging to realize that the abolition of this secondary anxiety involves the cure of the habit itself. The psychotherapeutic method of preference in such cases is reassurance, explanation and reeducation." Not one word is here said of the congestion in the prostate and the prostatic urethra. Experience in thousands of cases has shown that a relief of such congestion may cure the masturbator without any reference to the methods advocated.

Infra-Red Irradiation. By William Beaumont, M.R.C.S., L.R.C.P., Physician in Charge, Physiotherapy Department, Westminster Hospital, London. With a foreword by Lord Horder, K.C.V.O. Second edition. Fabrikoid. Price, 6s. 6d. Pp. 159, with 26 illustrations. London: H. K. Lewis & Co., Ltd., 1939.

This small volume professes to be a critical study of that part of the spectrum which radiates a certain portion of energy sensed and interpreted as heat. Though the author appears to lean on a number of recognized monographs on this subject, he raises the implication that the present use of infra-red therapy still lacks a scientific basis, which by innuendo is to be established in his contribution. Unfortunately the text presents nothing strikingly new and in the main is a repetition of both authoritative data and moot problems culled from various sources. Considering that infra-red is in wide use, it is essential for any author on this method to present the fundamental biophysical and physiologic problems for the purpose of confirming by personal study such quoted opinions as are at variance with one another. As a result of such omission the exposition leaves the reader in the dilemma of accepting or rejecting diverse opinions expressed by individuals other than the author. The actual need for a truly scientific work so far as concerns debatable problems is their solution by laboratory research. This the author has failed to give, so that the book is reduced to the status of a primer. Although the work is now in its second edition, the diction leaves much to be desired nor is the text free from

certain factual errors. Thus Ampère is again stated to have been a Swedish physicist, when his French nationality is common knowledge. The book is divided into six chapters, the first two offering in abbreviated and elementary form the physical and physiologic fundamentals of infra-red radiation. The remainder is devoted to a description of popular apparatus, the technic and the treatment of some common symptoms and disorders, and concludes with a tabulation of the results of treatment in more than 1,000 cases. At the outset the author has taken the laudable attitude of warning against regarding this method as a panacea and of ascribing to it on the basis of his clinical experience the role of a useful adjuvant.

Lee on the Levee: An Historical Novel. By Ralph Cannon. Cloth. Price, \$2.50. Pp. 188. New York: Saravan House, 1940.

Robert E. Lee as a young lieutenant in the engineering corps of the United States Army was ordered to St. Louis in 1837 to supervise work on the Mississippi River which would deepen the channel at St. Louis. During a part of this period of service, Lee's family and Dr. William Beaumont's family both lived in the mansion of Governor William Clark on the water front. The author has made a delightful story out of the association of these two famous families at that time, which gives a glimpse into the social life, the efficient and methodical ways in which Lieutenant Lee conducted his engineering work, and a brief account of the renowned physiologic experiments of Dr. Beaumont. The Canadian voyageur Alexis St. Martin is said to have lived with Dr. Beaumont and performed the duties of acting as servant at some of the social occasions described. The basis of the story is a collection of unpublished letters from the Lee family to the Beaumont family written after Lieutenant Lee had been ordered elsewhere. These letters were obtained for the author by Dr. Arno B. Luckhardt, professor of physiology at the University of Chicago, who obtained them for a museum display from Ethan Allen Beaumont of Green Bay, Wis., a grandson of Dr. Beaumont. Unfortunately the replies of the Beaumonts to the Lee letters have not been found. The author suggests that they may have been ransacked while the army was occupying Arlington, Lee's home in Virginia, just across the river from Washington, during the Civil War. The story serves also to show the admirable qualities in Lee as a young man, qualities of which the entire world learned later in Lee's life.

Accepted Dental Remedies Containing a List of Official Drugs Selected to Promote a Rational Dental Materia Medica and Descriptions of Acceptable Nonofficial Articles 1939. Council on Dental Therapeutics. Cloth. Price, \$1. Pp. 304. Chicago: American Dental Association, 1939.

This valuable compendium is frankly modeled on New and Nonofficial Remedies and Useful Drugs of the Council on Pharmacy and Chemistry of the American Medical Association, which are, of course, much older than the dental publication. The book is in handy pocket size and is competently indexed. The products included are classified and grouped according to chemical composition or therapeutic use. At the head of each grouping appears a compendious general statement bringing out the characteristics of the preparations which are of interest and usefulness to the dentist. The same purpose is excellently carried out in the brief statement of actions and uses under each different drug. For example, under Calcium Compounds there is given a concise statement of present day knowledge on the use of calcium preparations as aids to proper calcification, possible prevention of caries, and the relationship of vitamin D and parathyroid. Under the various calcium compounds included appear terse indications for dental therapeutic use and technical specifications for those which may be used as abrasives in dentifrices. Under dentifrices are listed some fifty commercial brands of dental pastes, powders and creams. This is a marked increase over the number listed in former editions. It must be concluded therefore that the work of the Council on Dental Therapeutics is bearing fruit and that commercial houses in increasing numbers are making their preparations and claims in accordance with the council's rational and enlightened rules. It is to be hoped that the dental profession will continue increasingly to support the work of their council in this and other respects.

The book contains an excellent outline on symptoms and treatment of acute poisoning; useful tables of solubilities, weights and measures; a brief but comprehensive therapeutic index, with a suggestive and rather extensive set of formulas utilizing the drugs described in the book. A complete bibliographic index to reports on articles found unacceptable by the council completes a handbook that should be the vade mecum of every practicing dentist and dental student.

Frontier Doctor. By Urling C. Coe, M.D. Cloth. Price, \$2.50. Pp. 264. New York: Macmillan Company, 1939.

A young medical graduate arrived in Bend, Oregon, in 1905 ready to begin practice in a new pioneer town a hundred miles from a railroad. He spent the night in a room shared with five other men and dressed next morning in freezing cold surrounded by a virgin pine forest which extended westward mile after mile to snow covered mountains. Here in the heart of the last pioneer stock country of the West the author remained for many years practicing among cowboys, sheepmen, Indians and other hardy folk. His book of experiences in this wide open town is an exciting tale, well written. He delivered babies, fought epidemics and treated those wounded in rough and tumble fights among Indians, horse thieves and rustlers. He pictures some of the personalities in this community. Finally for nine years he was associated here in practice with a schoolmate from a Chicago school. One may spend pleasantly an afternoon or evening reading this interesting story.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Liability of Hospital and Medical Staff for Nonunion of Fracture of Femur.—The Security Benefit Association, an incorporated fraternal insurance association, maintained for the use of its members a hospital separately incorporated as the "Security Benefit Home and Hospital Association." The plaintiff, a 56 year old woman, a member of the fraternal association and entitled to hospital benefits, was admitted to the hospital in April 1933 for a series of operations including a cholecystectomy, the removal of bunions and resection of her coccyx. She was attended by Dr. Hiebert and other physicians, all of whom were employed by the hospital on a salary basis as resident physicians and not as independent practitioners. May 10, two days after the last operation, the patient fell out of bed and sustained a subcapital fracture through the neck of her left femur. Because her operative wounds had not yet healed, treatment of the fracture was complicated. The fracture was reduced and immobilization instituted by a particular type of plaster cast, variously described as a "well leg traction splint" or "Jones Modified Traction cast," apparently the Jones method of incorporating a screw traction apparatus in plaster boots enclosing both the injured and the well leg from the knees to the toes. She contracted boils and suffered great pain in her back in the region of the operative wound for the removal of her coccyx, which wound discharged pus. After taking check-up roentgenograms the plaster cast was removed by Dr. Hiebert on June 12, four weeks and five days after the reduction of the fracture. About seventy diathermy treatments were administered by one Musick, a hospital attendant who was neither a physician nor a nurse. Nonunion of the fracture resulted. The patient was discharged from the hospital Sept. 22, 1933. During the next five months she underwent treatments from a half dozen physicians, not connected with the hospital, designed to build up her strength. A Whitman's reconstruction operation was performed on her left hip in February 1934.

The patient brought suit for malpractice, Sept. 20, 1935, and recovered judgment against the fraternal association, the hospital and Dr. Hiebert on a finding of the jury that: (1) she had sustained injuries due to unskillful treatment or lack

of treatment during her hospital stay; (2) the hospital permitted activities not properly supervised which could not have maintained immobilization after the removal of the cast; and (3) Dr. Hiebert and other hospital employees, including Musick, were guilty of unskilful treatment or failure to render treatment. The defendants then appealed to the Supreme Court of Kansas.

In passing on the contentions of the plaintiff as to the various ways in which the treatment administered to her by the hospital and its servants departed from good practice, the Supreme Court considered the testimony of physician-witnesses before the trial court. Dr. Hiebert testified that in a fracture of the type suffered by the patient he usually kept the cast on for about three months but that in this case he removed the cast sooner because the patient was suffering from sciatic neuritis and had become psychopathic. After removing the cast, he stated, he stabilized the injured leg with pillows and treated the neuritis. Two medical expert witnesses called by the defendants, in answer to a hypothetical question which assumed that the plaintiff suffered from sciatica and that she would become insane if the cast were not removed, testified that Dr. Hiebert under the circumstances was justified in removing the cast. One of these witnesses stated that his opinion was not based altogether on the belief that the patient would lose her mind if the cast was not removed. A medical witness called by the patient, who believed that the cast should have been left on longer, admitted that in fractures of the neck of the femur complications unrelated to the fracture sometimes make it necessary to remove the apparatus for fixation earlier than would be done otherwise.

It was not negligence, said the Supreme Court, not to enclose the injured hip in a plaster cast. In view of the plaintiff's condition there was no evidence that the method of fixation utilized was not proper under the circumstances. There was no evidence to support a charge of the plaintiff that no treatment had been rendered for five weeks after her leg had been placed in the cast. Neither, in the opinion of the court, was there negligence in permitting Musick to administer diathermy treatments. According to the evidence he had studied books on diathermy, had taken special training and had administered at the hospital about 3,000 prior diathermy treatments without any known harm. In the judgment of the court the charges of negligence made by the patient failed also because they were not mentioned in and could not be implied from the findings of the jury. The court also held that the defendants were not negligent in continuing to administer diathermy treatments until Sept. 21, 1933, even though those treatments caused the plaintiff pain since it did not appear from the evidence that such treatments could have been administered without causing pain.

Further, the court could not agree with a contention of the patient that the defendants, on learning that union was not taking place, should have instituted other treatment to induce union instead of concealing from the patient her true condition and the urgency for other treatment. Neither, in the opinion of the court, was it shown that the defendants failed to treat the patient with that degree of care and skill prevalent among hospitals and physicians in that vicinity, nor that a proper degree of care and skill would have caused the fracture to unite within a short time. Medical testimony was in accord that failure to obtain bony union in fractures of the neck of the femur is common particularly in patients of the plaintiff's age, where failure is estimated as occurring in from 35 to 50 per cent of the cases. It was not shown that some treatment other than that which the patient received would have been proper or advisable. The evidence did show that because of her physical condition the patient was unable to undergo some other treatments commonly used to induce union when the original treatment has failed. The jury's finding that when the cast was removed the patient was not suffering from "any ailment other than the fracture of the femur and the previous operations" was not supported by the evidence. In fact, as already stated, treatments to build up her strength to undergo the Whitman's reconstruction operation were necessary. Furthermore, stated the court, "there was no evidence that it was unprofessional, negligent or wrongful in this case (or in any case) for a physician to conceal from his patient her condition."

The court did not agree with a contention of the patient that, since the fraternal association and the hospital knew or should have known that Dr. Hiebert and the other physicians who treated the plaintiff were incompetent, they were negligent in employing them. The evidence, said the court, showed that prior to employing these physicians the hospital through its officials made a favorable investigation of their qualifications. The court was also of the opinion that a finding of the jury to the effect that the patient had been discharged too soon from the hospital on Dr. Hiebert's orders was unwarranted, since the evidence showed that the patient was discharged from the hospital at her own request.

The court found it unnecessary to consider what is described as the sharply debatable contention of the hospital association that it was a charitable institution and therefore immune from liability. The question as to whether or not the defendant associations, corporations, were unlawfully engaged in the practice of medicine was not before the court.

For the reasons stated, the Supreme Court, in effect, instructed the trial court to enter judgment for the defendants.—*Blackburn v. Security Ben. Ass'n et al. (Kan.)*, 86 P. (2d) 536.

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.
- American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Broncho-Esophagological Association, New York, June 5. Dr. Paul Hofinger, 1150 N. State St., Chicago, Secretary.
- American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Dermatological Association, Colorado Springs, Colo., May 30. June 1. Dr. Fred D. Weidman, 36 Hamilton Walk, Philadelphia, Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Laryngological Association, Rye, N. Y., May 27-29. Dr. C. J. Imperatori, 108 East 38th St., New York, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Neurological Association, Rye, N. Y., June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American ... Society, Hot Springs, Va., June 3-5. Dr. Eugene ... New Haven, Conn., Secretary.
- American ... Y., May 30-31. Dr. Isidore ... Secretary Pro-Tem.
- American Friesner ... York, June 23-28. Mrs. Eloise ... nd, Secretary.
- American T. Land ... Va., June 9-11. Dr. Curtice ... s, Texas, Secretary.
- American Rosser ... June 10-11. Dr. William E. ... ngeles, Secretary.
- American Costolow ... New York, June 10. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St., N.W., Washington, D. C., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- ... Society of Internal Secretions, New York, June 10-11. Westwood Blvd., Los Angeles, Secretary.
- ... Rangeley Lakes, June 23-25. Dr. F. R. ... ortland, Secretary.
- ... Portland, Ore., June 25-27. Miss Anna C. ... ston, Secretary.
- ... of Bozeman, June 18-20. Dr. Thomas F. ... Building, Great Falls, Secretary.
- ... Association, New York, June 4-6. Dr. G. ... 319, 1819 Broadway, New York, Secretary.
- National Tuberculosis Association, Cleveland, June 3-6. Dr. Charles J. Hatfield, 50 West 50th St., New York, Secretary.
- New Jersey Medical Society of Atlantic City, June 4-6. Dr. Alfred Slah, 55 Lincoln Park, Newark, Secretary.
- New Mexico Medical Society, ... 27-30 Dr. L. B. ... 219 West Central ... 26-29. Dr. ... Pacific Northwest Medical Asso ... C. W. Countryman, 407 Rive ... Rhode Island Medical Society, ... 124 Waterman St., Providence, Secretary.

Current Medical Literature

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Granuloma Inguinale: Successful Use of Giemsa Stain to Demonstrate Typical Pathologic Findings. L. J. Alexander and A. G. Schoch, Dallas, Texas.—p. 180.
Laboratory Diagnosis of Gonococcal Infections. Anne Chittenden Pitts, Baltimore.—p. 184.
Sporocidal, Trypanocidal and Mechanism of Activity of Organic Arsenical Compounds in Vitro and in Vivo in Relation to Therapeutic Effectiveness. J. A. Kolmer, Clara C. Kast and Anna M. Rule, Philadelphia.—p. 201.
*Changes in Long Bones of Newborn Infants Following Administration of Bismuth During Pregnancy. J. Whitridge Jr., Baltimore.—p. 223.
Effect Produced on Newly Contracted Syphilis by Transfusion of Blood Taken from Patients Affected with Late Stages of Syphilis. M. S. Bragin, Alma Ata, Soviet Union.—p. 228.
Use of Sulfanilyl-Sulfanilamide (Disulon) in Treatment of Sulfanilamide-Resistant Gonorrhea in the Male. J. C. Alexander, Dallas, Texas; M. A. Forbes, San Antonio, Texas, and A. L. Holloman, Frederick, Okla.—p. 234.

Quartan Malaria for Neurosyphilis Among Negroes.—

Fong presents the results of quartan malarial therapy among 436 Negro neurosyphilitic patients. It is generally accepted that Negroes are particularly immune to the organism of benign tertian malaria and therefore are refractive to this type of malarial therapy. A total of 229, or 53.2 per cent, of the 436 Negro patients responded successfully following malarial inoculation. This is a far greater response than that following tertian malaria, but it is considerably lower than the figures quoted by other authors. Of this number, 13.9 per cent were markedly improved by treatment, 33.1 per cent were improved and 52.8 per cent were unimproved. There were thirty-eight, or 12.2 per cent, deaths in the successfully inoculated group not directly attributable to malaria. Six deaths were due directly to therapeutic quartan malaria. There appeared to be no definite correlation between clinical and serologic improvement and vice versa, with the exception that the majority of patients clinically improved showed concomitant serologic improvement.

Bismuth in Pregnancy and Bones of Infants.—Whitridge reports the results of studies that were carried out with the purpose of determining whether or not bismuth compounds administered intramuscularly to twelve nonsyphilitic pregnant

women would produce changes in the skeleton of the newborn similar to those observed in the long bones of infants of syphilitic mothers who had received preparations of bismuth intramuscularly during pregnancy. The twelve women received weekly injections of 1 cc. of bismuth salicylate in oil for not more than eight administrations. In other respects antepartum management was conducted as usual, and the pregnancies progressed uneventfully and without complicating factors. Seven women were delivered within one week, one within eight days and four within from twenty-four to thirty-six days after the last administration of the bismuth compound. Roentgenograms of their children were taken within the first week of life. The roentgenograms of nine infants showed definite changes near the ends of the long bones. These changes consisted of areas of increased transverse bands of density similar to those described by Caffey. In two instances no changes could be detected and in one any alterations from the normal were so slight as to be questionable. In the two cases in which the roentgenograms were considered normal, the mothers had received eight and seven injections of the metal, respectively, and delivery took place within one week of the last injection. In the one questionable instance the bismuth compound had been given eight times and delivery occurred three weeks after the last administration. Apparently some factor other than the mere quantity of metal administered is involved in producing these changes. Ten of the twelve infants were normal full-term children and were well when discharged from the hospital. One infant died on the second day of life following a difficult breech extraction and death was undoubtedly due to trauma. Post-mortem x-ray examination of the skeleton showed well defined bands of increased density. At necropsy intracranial and intra-abdominal hemorrhages were discovered. Chemical tests for bismuth were negative when portions of bone from this infant were examined. A severe anemia developed shortly after the birth of the last infant. With repeated blood transfusions the child improved rapidly and was discharged two weeks later in good condition. The study supports Caffey's assumption that the changes in the long bones of infants of treated syphilitic mothers were produced by bismuth and not by healed syphilitic osteochondritis.

Annals of Surgery, Philadelphia

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- Role of Surgery in Management of Duodenal Ulcer. J. J. Westermann Jr., New York.—p. 338.
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*Problems in Surgical Treatment of Chronic Duodenal Ulcers. R. Lewisohn, New York.—p. 355.
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Carcinoma of Gallbladder: Study of Seventy-Five Cases. Gemma M. Lichtenstein and W. Tannenbaum, Chicago.—p. 411.
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*Malaria Simulating Acute Surgical Diseases of Abdomen. R. A. Daniel Jr., Nashville, Tenn.—p. 436.
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Treatment of Compound Fractures of Long Bones. J. H. Heyl, New York.—p. 470.
Control of Air-Borne Bacteria in Operating Rooms and Hospital Wards: Preliminary Report. Elizabeth Chant Robertson and M. Elizabeth Doyle, Toronto.—p. 491.

Surgical Treatment of Duodenal Ulcers.—According to Lewisohn, partial gastrectomy with removal of the ulcer is the operation of choice for duodenal ulcer. Opposition to gastric resection persists because of technical difficulties inherent in the operative technic. He believes that, if gastric resection was technically as simple as a gastro-enterostomy or a pyloroplasty, every surgeon would employ it. Exaggerated statements have been made about the inherent mortality and the magnitude of the operative procedure in gastric resection. With some experience and with proper organization, the mortality in primary cases

of gastroduodenal ulcers should not be higher than about 5 per cent. The mortality following a subtotal gastrectomy for gastric ulcers is usually higher than that following partial gastrectomy for duodenal ulcers. Yet gastric resection for gastric ulcers is considered by most surgeons as a justifiable procedure, whereas gastric resection for duodenal ulcers is considered too radical. It appears that opposition to the procedure is due to some extent to the abuse of the term "subtotal gastrectomy." The term implies that only a small stump of stomach is left. This term is fitting for the operation for high gastric ulcers. When one is dealing with duodenal or prepyloric ulcers the removed part represents a little more than one half of the stomach. Partial, rather than subtotal, gastrectomy is the correct term for this operation. The term "gastric resection" is also incorrectly applied to certain operative procedures. The surgeon should distinguish between a prepyloric or a postpyloric Finsterer operation. The Finsterer operation puts the ulcer at complete rest and reduces the preoperative hyperacidity considerably. Thus the method has a sound principle. The same cannot be said of the palliative resection of Madlener. If temporary cures follow this method, they probably occur independently of the operation, not because of it. Perforation and hemorrhage, the serious complications of duodenal ulcer, have been more frequent in recent years because duodenal ulcer is still considered a medical disease, even after repeated medical failures. The fact that a fair percentage of ulcer cases are refractory to medical treatment must be recognized. The economic factor may at times place the ulcer patient in the surgical group. While partial gastrectomy is far superior to gastro-enterostomy or pyloroplastic operations, it is not a definite safeguard against a recurrence. The ideal method for permanent cure of chronic duodenal ulcer still has to be found and it is possible that it will be along medical lines. At present when a series of medical treatments have failed, partial gastrectomy is the best method. It relieves the patient of many years of suffering, safeguards him against the serious complications of perforation or hemorrhage and effects a permanent cure in about 90 per cent of cases.

Malaria Simulating Acute Surgical Diseases of Abdomen.—Daniel discusses the confusing picture produced by abdominal pain, which may be a manifestation of malaria. Surgeons are familiar with the postoperative fever caused by the lighting up of a chronic malarial infection. These cases sometimes occur in temperate regions. Daniel reports nine cases of malaria simulating acute abdominal disease. Eight of the patients were encountered in a total of 266 patients with malaria admitted to the Vanderbilt University Hospital during the last thirteen years. An analysis of the cases reveals that the diagnosis of malaria was suspected and established in six cases because of the presence of leukopenia on admission. A rise in temperature was accompanied by a leukopenia, sometime after admission, in three cases. Two patients had an unexplained chill and the parasites were found in the routine blood smear. Sudden onset of severe abdominal pain occurred in six cases, and in three the pain was at first relatively mild and gradually increased in severity. Nausea was present in all cases and vomiting in eight. Only three patients had prodromal symptoms, headache and general malaise, and only three gave a history of previous attacks of similar abdominal pain. The past history of two patients was of significance in suggesting malaria as a cause of the symptoms. Chills occurred during the present illness in only three cases. The spleen of only one patient was felt, and he presented such marked abdominal tenderness and muscle spasm that neither the liver nor the spleen could be palpated until several hours after the parasites had been found and quinine was administered. The liver of only one patient could be felt. Three of the patients had a definite involuntary rigidity of the abdominal wall at the time of admission. The two patients who gave past histories of malaria had received inadequate treatment. The other patients had never had symptoms of malaria and had not received antimalarial treatment. The importance of painstaking, unhurried examination of the blood in similar cases is emphasized. Parasites are often found by the thick drop method when they are not numerous enough to be seen in smears. Repeated examinations of the blood were performed in five cases before parasites were seen. *Plasmodium vivax* was found in the blood of seven and *Plasmodium falciparum* in the blood of two patients. The usual criteria for differentiation of malaria from the common, acute surgical diseases of the abdomen were strikingly inadequate in most of the nine cases. Leukopenia was present in eight. It may be of considerable aid in suggesting the presence of malaria. The examination of a blood smear and of thick drop led to the correct diagnosis in five. The finding of malarial parasites in the blood of patients who present characteristic signs of intra-peritoneal disease does not exclude the possibility that such a disease may also be present.

Archives of Surgery, Chicago

40:585-820 (April) 1940

- Tumors of Lateral Thyroid Component. L. C. Cohn and G. A. Stewart, Baltimore.—p. 585.
- *Relation of Tumors of Lateral Aberrant Thyroid Tissue to Malignant Disease of Thyroid Gland. R. Ward, San Francisco.—p. 606.
- *Plasmocytoma of Thyroid Gland: Report of Case. R. C. Shaw and F. B. Smith, Preston, England.—p. 646.
- New Method of Uretero-Intestinal Anastomosis Utilizing Peritoneum. R. E. Brackin, Kentworth, Ill.—p. 658.
- Metastasis of Carcinoma to Scalp: Distinction from Cylindroma and from Carcinoma of Dermal Appendages. H. Montgomery and R. R. Kierland, Rochester, Minn.—p. 672.
- Clinical Classification of Lesions of Lower Extremities Associated with Diabetes: Guide for Operation and Level of Amputation. F. W. Williams and T. J. O'Kane, New York.—p. 685.
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- Changes in Plasma Volume Due to Decompression of Distended Small Intestine. J. Fine, F. Fuchs, Boston, and S. Gendel, Los Angeles.—p. 710.
- Gastric Secretion: I. New Gastric Pouch with Nonleaking Stoma and Intact Nerve Supply: Description of Two Stage Technic Used on Dog. O. Cope, C. E. MacMahon, A. Hagströmer and R. H. Thompson, Boston.—p. 717.
- *Hyperplasias of Mammary Gland in Human Being and in Mouse: Morphologic and Etiologic Contrasts. H. C. Taylor Jr. and C. A. Waltman, New York.—p. 733.

Tumors of Lateral Aberrant Thyroid and Malignant Tumors of Thyroid.—According to Ward, the dividing line between benign and malignant tumors is nowhere less sharply drawn than in tumors of thyroid tissue showing papillary design. Fifteen cases of tumors of aberrant thyroid tissue found in the pathologic material of 4,274 operations are presented in detail. There were ninety-five malignant tumors in normally situated thyroids. Twelve of the growths of the aberrant thyroid were tentatively considered by the author as malignant and three as benign. Of three patients dead of lateral tumors, two had growths of the papillary type and one a malignant adenoma. Of the twelve malignant tumors, seven were either predominantly papillary or showed some characteristics of that growth, while five showed no tendency toward papilliferous change. The most common location of lateral aberrant tumors is along the course of the sternocleidomastoid muscles. The tumors were single in only three instances. The remaining twelve cases were instances of multiple tumors, forty-two located in the left side of the neck and twenty-nine in the right. In three cases there was no associated involvement of the thyroid. In papillary tumors a papillary tumor was considered malignant in the presence of microscopic evidence of invasion of the capsule, blood vessels or lymph nodes. Regional or distant metastases were considered gross evidence of malignant change. Multiple lateral tumors, whether accompanied by similar tumors in the thyroid or not, do not constitute evidence of malignant change by themselves, and the presence of lymphoid elements in lateral tumors does not necessarily indicate that they are metastases to lymph nodes. Many of the changes which would bespeak a malignant condition in other organs are seen in the thyroid as a response to stimulation of the gland to greater activity. There is little evidence that the change from a benign to a malignant tumor of papillary structure is not a reversible process. There is considerable difference of opinion as to the origin of lateral aberrant thyroid nodules. If lateral aberrant thyroid tissue develops from embryonal rests, as was suggested by Wegelin, its response to stimulation may be the formation of papillary growths. If the factors causing stimulation are removed or altered, the tumors may regress unless they have reached an irreversible stage or the individual biologic factor resistant to cancer in the host is lacking. The loss of this assumed factor may explain the progression to a malignant

growth in older persons, and the retention of it may account for the apparently benign course of many of these tumors in children. Dunhill has reported complete disappearance of recurrent lateral tumors in two children on administration of large doses of thyroid substance. However, in adults the danger that an irreversible change will take place or has already taken place is too great to warrant less than complete removal of all lateral tumors and, contrary to the opinion of Crile, the application of radiation as a postoperative measure. It may be worth while to administer thyroid substance to all adult patients with such tumors, especially to those showing a thyroid deficiency. The author points out that the statistical comparison of malignant tumors of lateral aberrant thyroid tissue with those arising in the thyroid proper shows that the former are found in a younger age group, that they are more equally distributed between the sexes and that the mortality rate is less than half as great. Despite the more favorable mortality rate, the ratio of recurrence is high. Only four of the fifteen patients have remained free from the disease after a single operative removal. There were two deaths from papillary tumors, one from pulmonary metastases and one the author believes was caused by metastases from a lateral nonpapillary tumor. In view of this he feels that a guarded prognosis should be given in similar cases and that more deaths will be found in the cases reported by other investigators if a sufficiently long period of observation is maintained.

Plasmacytoma of Thyroid.—Shaw and Smith report what they believe to be the first case of plasmacytoma arising in the thyroid. The tumor appears to be related to Riedel's chronic thyroiditis. The case is that of a childless married woman aged 50 presenting a swelling in the region of the thyroid. The swelling slowly increased in size. The patient's only complaint was a sensation of choking when she lay in bed with her neck extended. The swelling conformed in outline to the shape of the thyroid and was free from the overlying skin, which was slightly reddened and edematous, and from the sternocleidomastoid muscles. No abnormality but osteo-arthritis of the knees and shoulders since the age of 36 was found. The basal metabolic rate was within normal limits. A total thyroidectomy was performed. The neck presented a normal appearance eighteen months later. A maintenance dose of thyroid substance has been given daily. Clinical, macroscopic and microscopic study of the tumor revealed dominance of the plasma cell and the relative paucity of lymphadenoid tissue, and the macroscopic appearance and clinical history resembled that observed in cases of Riedel's chronic thyroiditis. Microscopically the growth was an almost perfect example of a plasma cell tumor. The one point of distinction between this case and cases of thyroiditis was the exceptional prominence of the plasma cell. There is a division of opinion as to whether these tumors are inflammatory or true neoplasms. The association in their case with the changes known as chronic thyroiditis suggests that lesions occurring diffusely in the neck and those arising as localized masses in the nasopharyngeal mucosa (and more rarely in other places) have a common cause. In all the reported cases of thyroiditis, syphilis and tuberculous infection were excluded, nor could pyogenic organisms be held responsible. There must obviously be other etiologic factors which initiate a stimulus resulting in destruction of the thyroid in an otherwise healthy person, or the growth of masses of tissue in the neck. The authors believe that their case affords a clue in the long-standing osteo-articular and periarticular trophic disturbances. The importance of the adrenal hormone in connection with the conductivity of the neural impulse in the sympathetic system suggests that there is an intricate and delicate mechanism by which the passage of physical stimuli between the central nervous system and the thyroid or other tissue is intimately associated with the endocrine secretions. They consider the changes occurring in their case as one aspect of the pathologic course of a condition which is itself uncommon, namely Riedel's chronic thyroiditis, and that these conditions are expressions of tissue cell hyperplasia following a physiochemical disturbance that may be dependent on a complex cycle of causes in part due to disturbance of the neural control and in part of endocrine origin. They conclude that the plasmacytoma in this case belongs to a type of plasma cell hyperplasia which may occur in conjunction with lymphocytic hyperplasia, the two cellular elements varying in different

cases. In some the plasma cell predominates, in others the lymphocyte, and in still others the two are present in more or less equal proportions. The ultimate course of such a hyperplasia appears to be governed either by local tissue reaction or by cessation of the initial stimuli. They conclude tentatively that these uncommon changes are due to an imbalance of the neuro-endocrine control of the tissue cells. Disturbance of the neural impulse or of the physiochemical mechanism results in abnormal stimuli productive of intensive proliferation of the connective tissue cells and hyperplasia and destruction of normal glandular elements. Plasmocytoma of the thyroid, chronic thyroiditis and other extramedullary plasmocytomas are all expressions of a common pathologic process.

Hyperplasias of Mammary Glands.—The study is concerned with contrasting the morphologic structure of supposedly precancerous lesions in the mouse and in man and with the endocrine disturbances underlying each. The phases of the problem investigated by Taylor and Waltman were (1) microscopic characteristics of the two major lesions of chronic mastitis (adenofibrosis and hyperplasia of the ducts), (2) clinical evidence of ovarian dysfunction in women with chronic mastitis, (3) gross and microscopic structure of the mammary glands of two strains of mice differing in their susceptibility to mammary cancer, (4) a search for evidence of a specific physiologic endocrine difference between the two strains and (5) a study of the mammary glands of mice after injection of various endocrine substances. The pathologic material consisted of mammary tissue removed at operation from 103 patients with chronic cystic mastitis. Clinical aspects of the disease of the breast and data on the reproductive and menstrual histories were available. The lesions were subdivided into four groups: distortion of the mammary architecture owing to hyperplasia of fibrous tissue or of normally formed acini (adenofibrosis), proliferation of atypical acini (adenosis) and inflammatory or neoplastic disease of the ducts. The acinar proliferation is the form of human mammary lesion most closely resembling abnormal proliferation developing in the glands of mice susceptible to mammary carcinoma. There are at least two separate entities which have been called chronic cystic mastitis. The first is characterized by a diffuse nodularity and by premenstrual pain. The basic microscopic lesion is fibrosis or adenofibrosis involving the interstitial fat and the periacinar tissue. The ducts are but slightly affected. The condition is analogous to adenomyosis of the uterus and should be termed adenofibrosis. The second type is characterized by a discharge from the nipple, often associated with palpable dilatation of the ducts near the areola. The microscopic alterations are edema of the lobules, dilatation of the ducts, periductal inflammation and possibly some hyperplasia of the lining of the ducts. The disease should be termed nonpuerperal lactation, periductal inflammation or duct hyperplasia. A third type is perhaps to be recognized in more or less local lesions, such as a single papilloma in the larger ducts or the isolated nodules of Schimmelbusch's disease. The clinical evidence of ovarian disorder obtained from the microscopic study showed that of forty-seven patients with painful nodular breasts only seventeen had borne children, while of forty-six patients with discharge from the nipple forty-one had children. All the patients with a simple milky discharge had been pregnant. This supports the claim that two distinct entities are being dealt with. Disturbances of the menses affect a minority of patients with chronic mastitis but are more frequent than in normal women. A decrease in the amount and duration of the menstrual flow in cases of painful nodular breast (adenofibrosis) was again evident in about a fifth of the cases. The consistency with which this rather uncommon anomaly of menstruation has been reported in this type appears to establish its association with the disease. Delay in menstruation may be present. Papillomas of the ducts and circumscribed adenomatous proliferations are to be regarded as nearly independent neoplasms, while the more diffuse processes, occurring before the menopause, are to a greater extent dependent on ovarian function. The significance of endocrine abnormalities in chronic mastitis assumes importance from the observation of mice susceptible to mammary carcinoma. Striking differences were observed in the spontaneous lesions resembling chronic mastitis in two strains of mice as early as the third month of life. The essen-

tial difference was a vast increase in the number of acini in the cancer susceptible strain. The mammary glands of these two strains are similar at birth. The hereditary factor is probably not in the gland but in stimuli which make themselves evident in morphologic change in the mammary gland early in the life of the animal. The early changes which eventually lead to spontaneous carcinoma in mice affect essentially the peripheral portions of the mammary gland. The more common characteristics of so-called chronic cystic mastitis were not observed to occur spontaneously in mice. The strain with excessive mammary proliferation had a much larger ovary with many more corpora lutea than the cancer resistant strain. Less striking differences were present in the adrenal and the thyroid. No differences in the anterior lobe of the pituitary were observed. However, the strains studied are not necessarily representative of all cancer susceptible or cancer resistant groups. The differences in the ovaries of the two strains indicate the need of morphologic examination of the ovaries of women with hyperplastic and neoplastic disease of the breast. The authors studied the effects of an excess of four different endocrine principles on the two strains. The basic difference, diffuse adenomatous proliferation of acini, was persistent no matter what endocrine principle was injected. Morphologically similar structures are sometimes seen in human mammary disease, but their presence does not constitute an essential feature of "chronic mastitis." The diffuse fibrosis or adenofibrosis, the most common form of benign mammary disease in women, has no morphologic counterpart in the mammary lesions of mice, whether spontaneous or induced by endocrine substances. Retained secretion in dilated ducts, moderate hyperplasia of the lining of the ducts and signs of periductal inflammation are closely imitated by lesions in mice which develop after prolonged administration of endocrine substances, especially estradiol. Complex neoplastic lesions occurring in the human breast, such as papillomas or proliferation of the epithelium, do not develop in the breast of the mouse either spontaneously or after prolonged administration of estrogens.

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Two Physicians and Two Periods in the Medical History of Georgia: Dr. Joshua Elder White of Savannah and Dr. Alexander Jones of Lexington. V. H. Bassett, Savannah.—p. 137.
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Journal of Urology, Baltimore

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- *Hypertension Associated with Unilateral Nephropathy. R. M. Nesbit and R. K. Ratliff, Ann Arbor, Mich.—p. 427.
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Sulfanilyl-Sulfanilamide (Disulon) versus Sulfanilamide in Treatment of Acute Gonorrhea in the Male. L. J. Roth, Columbus, Ohio.—p. 483.
Comparative *In Vitro* Action of Sulfanilamide, Sulfapyridine and Sulfathiazole in Urine. Justina H. Hill, Baltimore.—p. 491.
Cystometric Observations in Asymptomatic Neurosyphilis: II. E. L. Brodie, I. Helfert and I. A. Phifer, Buffalo.—p. 496.
Rupture of Urinary Bladder. H. Culver and W. J. Baker, Chicago.—p. 511.

Hypertension and Unilateral Nephropathy.—Nesbit and Ratliff report nine cases of hypertension associated with chronic inflammatory nephropathy, three cases of chronic inflammatory nephropathy without hypertension, two cases of hypertension associated with obstructive nephropathy and one case of hypertension associated with sclerotic and cystic nephropathy (ischemic) resulting from trauma. Experimental and clinical

investigations have established a relationship between non-nephritic renal lesions and hypertension. Numerous cases of hypertension have been reported associated with unilateral and bilateral chronic sclerosing pyelonephritis. Vascular changes within the infected kidney associated with hypertension have been reported by most observers. That the same vascular changes may occur in chronically infected kidneys without associated hypertension seems evident from cases presented. Nephrectomy appears to be a justifiable procedure in cases of unilateral pyelonephritis with associated hypertension. Improvement may be expected in this group provided the functioning capacity of the remaining kidney is unimpaired. Secondary vascular changes elsewhere in the body may militate against recovery. The authors point out that the results of treatment in their two cases of obstructive nephropathy with hypertension clearly demonstrate that the causal relationship between obstruction and hypertension is not due to renal insufficiency. They suggest a reflex rather than a toxic or humoral factor, since nephrostomy was as effective as nephrectomy in returning the blood pressures to a normal level. The one case of malignant hypertension occurred ten years after traumatic injury to the kidney. The possibility of a causal relationship between ischemic changes in this kidney and the hypertension suggests the advisability of periodic blood pressure determinations in all cases following traumatic injury of the kidney. The development of hypertension in such circumstances would appear to make prompt nephrectomy a rational procedure.

Urologic Manifestations of Appendicitis.—Ehler reviews subjective and objective manifestations of appendicitis that might be confused with those of the urogenital tract, in particular the lower urinary tract. The opposite situation is not infrequent. He classifies urologic manifestations of appendicitis as follows: (1) disorders of micturition (frequency of urination, pain on urination, dysuria and retention of urine), (2) abnormalities of the urine (hematuria, pyuria, albuminuria and anuria), (3) pain in the right testis or retraction of the testis, (4) renal or ureteral colic and (5) tenderness in the right costovertebral angle. If disorders of urination were due to sympathetic irritation, as Deaver suggests, one would expect to find them associated with negative urinary changes, but such is rarely the case. In the presence of symptoms there are usually found varying amounts of blood, pus or casts, along with micro-organisms, in the urinary sediment. Such observations are much more compatible with the theory of intimate contact of the appendix or the inflamed peritoneum with some part of the urinary tract. Operative and postmortem observations demonstrated that this is the usual occurrence. The site most frequently involved is the right ureteral wall at the brim of the bony pelvis. In place of "toxic hematuria," "reflex renal congestion" and similar concepts, one may find a more logical and more easily verified solution in the frequently found intimate association of the inflamed appendix with the right ureteral wall. Pyuria, both slight and massive, not infrequently encountered in appendicitis, may be similarly explained. An inflamed appendix in actual contact with the right ureteral wall produces a periureteritis and ureteritis that result in pus cells passing into the ureteral lumen and eventually appearing in the urine. An actual pyclitis depending on a lymphogenic ascent of colon bacilli up the periureteral lymphatics to the kidney may, and in all probability does, play some part. In an analysis of 300 cases of pyelitis, Van Duzen listed appendicitis as being the probable etiologic factor in 7.6 per cent. Massive pyuria may be seen following the rupture of an appendiceal abscess into the bladder. Albuminuria seen in appendicitis may usually be accounted for by the pus and blood cells present in the urine at the same time. Anuria is a rare accompaniment. According to Copc, testicular pain occurs in about 5 per cent of the cases of appendicitis. It may precede the abdominal pain by an hour or two. Pain resembling renal or ureteral colic is frequently seen when the appendix or its inflammatory exudate is in contact with the renal pelvis or the right ureter. Tenderness in the right costovertebral angle is seen in many cases of appendicitis, particularly in those in which the appendix occupies a retrocecal position.

New England Journal of Medicine, Boston

222:425-470 (March 14) 1940

- Surgery of Stomach and Duodenum: Medical Aspects. C. M. Jones, Boston.—p. 425.
*Id.: Gastroscopic Examination. E. B. Benedict, Boston.—p. 427.
Id.: Surgery of Stomach. A. W. Allen, Boston.—p. 434.
Id.: Surgery of Duodenum. F. H. Lahey, Boston.—p. 444.
Psychiatry. V. P. Williams, Boston.—p. 452.

Gastroscopic Examination.—The concept of gastric disease has undergone considerable change since the introduction of the Wolf-Schindler flexible gastroscope. It is now possible to see the inside of the stomach and to observe changes in the gastric mucosa not demonstrable by any other method. Benedict discusses the use of the gastroscope in the various gastric disorders and cites illustrative case histories. On the basis of observations extending over a period of six years, he concludes that gastroscopy is a safe procedure, easily performed and well tolerated by most patients, and that the information obtained is of great value to the surgeon. Since gastritis is the commonest disease of the stomach and since massive hemorrhage may come from gastritis alone, all patients with unexplained gastrointestinal bleeding should have a gastroscopic examination. Gastritis which frequently accompanies gastric or duodenal ulcer must be recognized and localized, particularly if surgical intervention is being considered. Since postoperative gastritis is a definite entity best recognized by gastroscopy, gastroscopic examination should always precede secondary intervention. In both gastric and duodenal ulcers the associated gastritis, which may seriously modify the medical or surgical management of the patient, is best studied by gastroscopy. Gastric ulcers not previously suspected have been demonstrated by the method. The gross appearance of the lesion, whether clean and sharply defined, as in benign ulcer, or dirty and irregular, as in malignant ulcer, and its response to treatment are points of great importance that should be studied by gastroscopy. The method is of value in the diagnosis of carcinoma in determining its location and extent and in differentiating benign and malignant lesions.

New York State Journal of Medicine, New York

40:311-384 (March 1) 1940

- *Sulfanilamide in Treatment of Scarlet Fever: Need for Research Point of View. A. C. Silverman, Syracuse.—p. 317.
Tuberculosis in Student Nurses. L. Brabhy, New York.—p. 326.
Spasmodic Tendency and Its Relation to Eyes. R. K. Lambert, New York.—p. 334.
Camp Sanitation. C. A. Holmquist, Albany.—p. 341.
Use of Sulfanilamide in Treatment of Hemolytic Streptococcus Empyema. L. J. Leahy, Buffalo.—p. 347.
Distinctive Odor in Patients Receiving Sulfanilamide. S. Leibowitz, New York.—p. 363.
The Function of a Child Guidance Clinic. H. A. Steckel, Syracuse.—p. 364.
Relation of Food to Nonspecific Ulcerative Colitis. M. L. Bodkin, Brooklyn.—p. 368.

40:385-460 (March 15) 1940

- Treatment of X-Ray Burns and Other Superficial Disfigurements. A. B. Cannon, New York.—p. 391.
Chronic Pyelonephritis: Cause of Hypertension and Renal Insufficiency. W. S. McCann, Rochester.—p. 400.
Prognosis of Nephritis and Nephrosis in Childhood. H. Schwarz, J. L. Kohn and S. B. Weiner, New York.—p. 409.
Friedreich's Ataxia Associated with Diabetes Mellitus. N. S. Schlezinger, Philadelphia, and K. Goldstein, New York.—p. 415.
Mechanical Obstructions of Small Intestine. W. F. MacFec, New York.—p. 424.
Trauma in Relation to Pulmonary Tuberculosis. C. E. Hamilton, Brooklyn.—p. 435.
Nutritional Study: Analysis of 100 Medical Admissions to St. Luke's Hospital. J. R. Scott and Margaret McAllister Janeway, New York.—p. 440.
Applications of Electro-Encephalography in the Practice of Medicine. H. Strauss, New York.—p. 444.

Sulfanilamide for Scarlet Fever.—According to Silverman, there has been a striking change in the character of scarlet fever over the last seventy-five years, the mortality in 1938 being but one one-hundredth of that in 1861, which was 100 per hundred thousand. This increasing mildness caused some difficulty in evaluating the therapeutic effects of serum and of sulfanilamide. The latter exerts no evident influence on the toxic phase of scarlet fever. The author refers to several studies which suggest that sulfanilamide may lessen the incidence of suppurative ear complications. No series large enough to be accepted as conclusive were published. As a

basis for statistical consideration he analyzes a nonepidemic series of eighty-four cases admitted to the Syracuse City Hospital last year; forty-three patients were given sulfanilamide and forty-one served as controls and were given serum. A smaller ratio of suppurative otitis media was encountered in the sulfanilamide group. Of twenty-three toxic patients on admission given sulfanilamide suppurative ear conditions developed in two as compared to seven of nineteen similar control cases. Nevertheless definite conclusions are unwarranted on the basis of a small series. Sulfanilamide does not replace antistreptococcus serum in cases of toxemia. In severe cases with toxic and septic phases, combined treatment is indicated. For the sick patient it is justifiable, under proper safeguards, to incur the risk of serum reaction or drug intolerance.

Radiology, Syracuse, N. Y.

34:261-390 (March) 1940. Partial Index

- Antepartum Roentgenographic Diagnosis of Fetus Papyraceus. A. C. Johnston, Berlin, N. H., and M. C. Sosman, Boston.—p. 261.
Roentgenologic Aspects of Bronchomycosis. H. P. Doub, Detroit.—p. 267.
Differential Diagnosis of Nonspecific Interstitial Pneumonitis. F. J. Hodges, Ann Arbor, Mich.—p. 276.
*Miniature X-Ray Chest Film. H. E. Potter, Chicago; B. H. Douglas and C. C. Birkelo, Detroit.—p. 283.
*Roentgenographic Prognosis of Pulmonary Tuberculosis. J. Gershon-Cohen and J. T. Farrell Jr., Philadelphia.—p. 292.
Evaluation of Roentgen Therapy in Sinus Disease. J. R. Maxfield Jr. and C. L. Martin, Dallas, Texas.—p. 300.
Pulmonary Involvement in Lymphoblastomas, Special Reference to Roentgen Aspects. A. Hartung, Chicago.—p. 311.
Incidence and Significance of Apical Lesions in Pulmonary Tuberculosis: Pathologic and Roentgenologic Study. E. A. Addington and B. R. Kirklín, Rochester, Minn.—p. 327.
Benign Duodenocolic Fistula: Report of Two Cases. C. N. McPeak, Fitchburg, Mass.—p. 343.

Miniature Chest Films.—Potter and his co-workers find that a 4 by 5 inch film reproduction of a fluoroscopic image is small enough to constitute real economy and yet large enough to be readily interpreted without enlargement. The technic of producing this film comprises a modern x-ray installation with rotating anode tube capable of handling 400 milliamperes of current at from 60 to 80 kilovolts, an impulse timer and a tube-screen distance of 50 inches (125 cm.). The time necessary for exposure depends on the thickness of the chest and varies from one twentieth to four twentieths of a second. The fluorescent screen used is nearly seven times as fast as the usual Patterson screen. The lens has a rating of 1.5. This lens is capable of producing a sharp image in an area $3\frac{3}{4}$ inches in diameter on the 4 by 5 inch film. For the best results the patient's chest image must be centered within this area. To test the capacity of this film 1,610 patients were examined with both the regular 14 by 17 inch film and the miniature film, taken at the same time. The readings were interpreted and recorded independently. A total of 271 patients were found to have various types of active tuberculosis. Five of the minimal lesions were missed in the interpretation of the miniature films. Two other minimal lesions were called "healed primary." All these lesions were small and might easily have been missed in a regular film taken at a different angle, a slightly different depth of breathing or with less perfect technic. In nearly every instance these missed lesions were superimposed over rib shadows. This constituted an error of 2.6 per cent. There were five small lesions of active primary infection or enlargement of the lymph nodes. None of these were missed in the miniature film. Of fifty-four dry pleurisies nine were missed, an error of 17 per cent. This unnecessarily large error was due to too much attention being given the apexes with the consequent throwing out of focus of the bases. This has since been balanced so that the bases are nearly as well demonstrated as the apexes, with the result that this error can be decreased with a little extra care. From the regular films twenty-eight cases were classified as "minimal healed tuberculosis." Eight of these were not considered sufficiently significant in the miniature film to be mentioned. If a descriptive report had been given, it is likely that no significant error would have resulted. Two of twelve cases of valvular cardiac lesions from which symptoms resulted similar to those found in tuberculosis were called mixed but, when the errors were reviewed, they were found to be oversights as the signs were definitely there. Some nontuberculous lesions, especially those at the base, were missed at first because too much concentration was given to the apical areas. Basal detail can

be obtained and interpreted when one has learned to distinguish between shadow differences in the miniature and in the regular films. The authors now apply the method to new patients coming to the tuberculosis clinic without taking a large film except when there is a questionable appearance in the small film. This has proved satisfactory in the two months during which 1,719 persons have been examined. The authors believe that the method can be carried out economically enough to make it practical in surveying large numbers without a preliminary tuberculin test, even in groups in which the reactor rate is low. There is need for only one visit by the patient. Only a few patients need to be reexamined, whereas with the preliminary tuberculin test at least two visits are required. There is always a loss growing out of the fact that many reactors fail to appear for x-ray examination. This amounted to 4,719 out of 31,803 reactors, or 14.8 per cent, in a recent study in Detroit. Most persons would rather have a roentgenogram taken than submit to a tuberculin test. There is also the possibility of detection of nontuberculous lesions of the heart and lungs. The cost of taking the 4 by 5 inch film is reasonable. These small films are easily handled, can be interpreted at the same speed as the large films, and require little space for storage. The method has definite advantages over full size celluloid films, sensitized paper films, full size films and 35 mm. films in accuracy, in cost or in both.

Prognosis of Pulmonary Tuberculosis.—Gershon-Cohen and Farrell investigated the prognostic possibilities of roentgenologic examination of tuberculous patients. They set up a standardization in diagnosis which included the extent and distribution of lesions, type of lesions and cavities. The changes on one side bear on those of the other side in a given relationship. The lesions were divided into four benign and four malignant groups. They have analyzed more than 600 cases and their preliminary estimate reveals that their prognoses were correct for approximately 80 per cent. In order to limit the laboratory observations were excluded from all prognostic considerations. They believe that, when the same cases are reviewed to include these additional data, a better average of accuracy will be achieved. Their best prognoses were made in the more advanced benign and virulent groups. In the sanatoriums in which the analysis was made, most of the cases were benign or virulent to a moderate or advanced degree and the same held true in the dispensary practice. This would seem to reemphasize that, by the time the x-ray examination is asked for, pulmonary tuberculosis has passed beyond the early stages, in which event no one, the roentgenologist included, can foretell from a single examination the progress of the disease. Serial examinations can be resorted to and a fairly accurate prognosis arrived at in a few weeks.

Surgery, St. Louis 7:325-484 (March) 1940

- Histologic Study of Thyroid of Exophthalmic Goiter at Intervals During Administration of Iodine. W. D. Wilson, Marietta, Ga., and C. W. Mayo.—p. 325.
Progressive Postoperative Gangrene of Abdominal Wall: Case Report. H. J. Vier, White Plains, N. Y.—p. 334.
Keller Operation: Partial Phalangectomy in Hallux Valgus and Hallux Rigidus: Report of Fifty-Five Operations in Thirty-Two Cases. A. J. Schein, New York.—p. 342.
Principles Governing Treatment of Fractures and Bone Lengthening by Direct Skeletal Means and New Apparatus: Preliminary Report. E. J. Haboush, New York.—p. 356.
Artificial Skin-Lined Antetoracic Esophagus for Impermeable Stricture. A. H. Noehren, Buffalo.—p. 364.
Inquiry into Functional Capacity of Cecal Appendage in Representative Birds and Mammals. C. Dennis, R. E. Buirge and O. H. Wangerstein, Minneapolis.—p. 372.
Renal Venipuncture: Method of Explanation of Kidney for Venipuncture in Dogs. I. H. Page and A. C. Corcoran, Indianapolis.—p. 389.
Complete Recovery from Serious Vascular Impairment Following Removal of Cervical Rib. S. Silbert, New York.—p. 392.
Acute Free Perforation of Gallbladder Occurring Twice in Same Patient. E. I. Greene and G. C. Coe, Chicago.—p. 396.
Postoperative Simultaneous, Bilateral, Spontaneous Pneumothorax: Case Report. T. Golden, New York.—p. 401.
Recurrent Echinococcus Cyst of Thigh. J. B. Mason, Philadelphia.—p. 407.
Tidal Irrigator. E. P. Vary, Flint, Mich.—p. 410.
Localization of Occult Liver Abscess During Laparotomy Under Procaine Infiltration Anesthesia. E. S. Stafford, Baltimore.—p. 417.
Bilateral Extradural Hemorrhage: Case. P. A. Kunkel Jr., Harrisburg, Pa.—p. 420.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London 37:1-88 (Jan.-March) 1940

- *Nutritional Anemia: Further Survey of Debilitated Children in Manchester. Anne E. Somerford.—p. 1.
Diagnostic Errors. S. Wolff.—p. 16.
*Lederer's Anemia. F. R. B. Atkinson.—p. 35.

Nutritional Anemia in Debilitated Children.—Somerford reports on 201 children attending the outpatient department of the Royal Manchester Children's Hospital during 1938. The children were undernourished and appeared anemic but had no organic disease. Red cell-counts of 4 million or less per cubic millimeter and 70 per cent or less of hemoglobin were considered as anemic. The ages of the children varied between 10 weeks and 13 years and 9 months. One hundred and seventeen, or 58.3 per cent, were found to be anemic with red cell counts between 3 and 4 million. Anemia was more prevalent in the male sex. About 45 per cent of the mothers were anemic. The red cells were chiefly normocytes with a mild degree of anisocytosis and poikilocytosis. Nucleated red cells were seen occasionally. The number of platelets was normal or increased. The leukocytes were within normal limits. Sixteen children and one mother had an anemia of the microcytic type such as may be associated with iron deficiency. The greater number of ill nourished children were among the wealthier families, but the proportion of anemic to nonanemic children was roughly the same in the three financial classes. Most of the children were breast fed. Exercise seemed to be fairly adequate in most cases, but it is doubtful whether hours of sleep were sufficient, particularly among the poorest. The size of the family had little effect on whether anemia was present or not. Vitamin C deficiency was found in twenty-one of sixty-three patients examined. Forty-one of the wealthier ones were deficient, twenty-two of the poorer class. Three factors appear to play a part in the production of malnutrition and nutritional anemia: 1. Poverty. 2. A slackening in home discipline, which permits the child to stay up late, and not to eat food he does not like; this factor accounts for the much larger percentage of vitamin-deficient children among the wealthier families. 3. Some psychologic influence; this is seen in anxious and hypersensitive children the offspring of nervous, highly strung mothers. The purely nutritional cases would be better off if dealt with away from the hospital atmosphere. After a preliminary examination to exclude the presence of disease, they should be returned to their welfare workers, women intimate with the home conditions and respected by the mothers.

Lederer's Anemia.—The literature on Lederer's anemia, according to Atkinson, comprises thirty cases in children and twenty-nine in adults. In most cases the disease begins acutely with exhaustion, profound asthenia, gastrointestinal symptoms, swelling of the abdomen, severe headache, pains in the limbs, tonsillitis and pharyngitis. An icteric tinge of the sclera and skin may be present. There is, as a rule, intermittent fever of urobilin and may contain casts. Retinal hemorrhages with atrophy of the disks have been described. Hemie murmurs are often present. Hemoglobinuria was present in eleven of the thirty cases in children. The blood picture is characteristic. There is an acute hemolysis evidenced by hemoglobinuria, by hyperbilirubinemia, by increased excretion of urobilin in the urine and feces, by fragility of the erythrocytes and by the abnormally increased blood regeneration as revealed by the numbers of reticulocytes and erythroblasts. The color index is often above 1. The hemoglobin is reduced in amount, the smallest recorded as low as 10 per cent. The red cell count is much below normal. Leukocytosis is nearly always present. The cause of hemolysis is a toxic factor the exact nature of which is unknown. Lederer's anemia is more frequent in the male, twenty-one and nine, respectively. The diagnosis is based on the acute onset, rapid anemia with no apparent cause, the evidence of hemolysis and the rapid cure resulting from transfusion. The outlook is grave if untreated but favorable if the proper treatment is instituted. Blood transfusion is the treatment of choice. Iron is of some value.

British Medical Journal, London

1:471-516 (March 23) 1940

- Chemotherapy of Clostridium Welchii Type A and Clostridium Septicum Infections in Mice. Dora Stephenson and Helen E. Ross.—p. 471.
- A Vascular Mechanism Related to the Great Vein of Galen. W. E. Le Gros Clark.—p. 476.
- Mild Epidemic of Undulant Fever in a Boys' School Due to Drinking Raw Milk. G. W. Elkington, G. S. Wilson, Joan Taylor and F. Fulton.—p. 477.
- *Subcutaneous Implantation of Female and Male Hormone in Tablet Form in Women. A. A. Loeser.—p. 479.
- Sulfonamide Treatment of Bacterial and Trachomatous Conjunctivitis. A. F. MacCallan.—p. 482.
- Epilepsy Treated with Epanutin. A. J. M. Butter.—p. 483.

Subcutaneous Implantation of Hormone Tablets.—Loeser implanted female hormone tablets in two women and male hormone tablets in ten. The two women in whom estradiol tablets were implanted had theretofore been sterile. Both had infantile uteri, desired children and had been treated unsuccessfully with female hormones and anterior pituitary lobe preparations. The result of the implantation was negative in the first patient, as the tablets were expelled ten days after their insertion, being implanted too near the skin. The large quantity of estradiol in the second patient depressed the function of the anterior lobe of the pituitary. As a result, maturation of the ovum and menstruation did not occur. Local action of estradiol on the uterine muscle and mucous membrane of the uterus became visible. The uterus grew and the mucous membrane became converted into cystically proliferated endometrium and was cast off gradually by hemorrhage. After the hormone tablets were removed the anterior lobe gradually recovered, the hibernating ovary was stimulated by fresh gonadotropic hormone produced in the anterior lobe, ripening of the ovum occurred again and hence there was normal menstruation. The muscular apparatus of the uterus had been substantially strengthened and was now able to draw up the semen, which it had previously been unable to do because of muscular deficiency. The patient became pregnant. Of the ten women given male hormone implants five had uterine fibroids, one functional bleeding, two chronically recurring mastitis and multiple nodules in the breast and two mammary cancer. The implantations controlled in some measure menorrhagia caused by fibroids in all the patients, and successfully in three. Male hormone did not influence existing recurrences of carcinoma of the breast following an operation or roentgen treatment. To what extent male hormone can have a prophylactic action against such recurrence is not yet determined. Improvement was obtained in the two women with chronic mastitis. All the patients acknowledged a feeling of well being, more balanced moods and clearer thinking, and some professed a greater determination.

Indian Medical Gazette, Calcutta

75:65-128 (Feb.) 1940. Partial Index

- Circulatory Failure in Typhoid Fever. G. Kelly.—p. 65.
- Further Light on Mechanism of Sandfly Transmission of Kala-Azar. R. O. A. Smith, K. C. Halder and I. Ahmed.—p. 67.
- Venom of Indian Cobra (Naja Naja) in Certain Painful Conditions. R. N. Chopra and J. S. Choyhan.—p. 69.
- Observations on Pathology and Therapy of So-Called Frontier Sore (Second Communication). H. J. Hamburger.—p. 76.
- Studies in Epidemiology of Plague in H. E. H. the Nizam's Dominions: Comparison of Certain Factors in Plague-Infected Place with That of Neighboring Plague-Free Area. S. Raghavender Rao.—p. 80.
- Remarks on Etiology and Symptoms of Young-Dah-Hte (Neurosis): Report on Four Cases and Its Medicolegal Significance. R. M. L. Still.—p. 88.
- Vitamin C and Ovulation. A. P. Pillay.—p. 91.
- New Method of Treating Leukoderma. D. Panja and P. A. Maplestone.—p. 93.

Journal of Hygiene, London

40:1-124 (Jan.) 1940

- Notes on Preparation of Papers for Publication in the Journal of Hygiene and in Parasitology. G. H. F. Nuttall.—p. 1.
- Scottish Cancer Mortality: Comparison of Urban and Rural Rates for Various Tumor Locations, 1931-1937, and a Survey of Recent Trends. R. S. Barclay and W. O. Kermack.—p. 63.
- Poliomyelitis Epidemic of 1937 in Denmark: Epidemiology and Clinical Statistics. E. J. Henningsen and G. Rasch.—p. 84.
- Serologic Investigation into Enteric Fever, with Particular Reference to Sporadic Cases.—p. 104.
- Schick and Dick Reaction.—p. 104.
- son, A. J. Glazebrook and U. A. Green.—p. 115.
- New Salmonella Type (Salmonella Rubislaw). J. Smith and F. Kauffmann.—p. 122.

Lancet, London

1:533-582 (March 23) 1940

- The Mystery of Alimentation. E. P. Cathcart.—p. 533.
- Transport of Wounded: Surgical Aspects. T. B. Layton.—p. 537.
- Tumorigenic Powers of Stilbestrol and Follicular Hormones. A. Lipschütz and L. Vargas Jr.—p. 541.
- Action of Veritol on Blood Pressure and Heart Under Various Anesthetics. G. Schoenewald, A. Schweitzer and G. C. Steel.—p. 544.
- Spontaneous Hemothorax: Report of Case. M. Davidson and C. K. Simpson.—p. 547.
- Further Case of Labyrinthectomy. M. Yearsley.—p. 548.

Medical Journal of Australia, Sydney

1:325-360 (March 9) 1940

- *Epidemiology of Poliomyelitis, with Special Reference to the Victorian Epidemic of 1937-1938. F. M. Burnet.—p. 325.
- Some Problems of the First Year of Life and Their Management. F. N. LeMessurier.—p. 336.
- The Sanatorium: Quo Vadis? A. H. Penington.—p. 341.

Epidemiology of Poliomyelitis.—Burnet reports the experimental work on the Victorian poliomyelitis epidemic of 1937-1938. The infection did not produce poliomyelitis antibody; certain children with initial antibody nevertheless suffered from paralytic infection. Cynomolgus monkeys could be infected with the local virus by ingestion or by pharyngeal swabbing. A study of the age incidence of poliomyelitis led to the conclusion that a change in the character of the disease has taken place in the last thirty or forty years. In the earlier period poliomyelitis was essentially an adult infection with incidental disorder of infants, while the present epidemic of poliomyelitis is a disease of childhood, spread by child contact. Poliomyelitis virus strains derive eventually from a virus which, prior to the end of the nineteenth century, was responsible for frequent infections of some part of the nasopharyngeal mucosa. Occasionally primary infection by the virus in unimmunized persons resulted in spread of the virus to the central nervous system and clinical paralysis. This happened only on first infections which, owing to the wide diffusion of the virus, could naturally occur only in very young children giving rise to the name "infantile paralysis." At this period the virus was capable, as influenza virus is today, of producing superficial infections in adults or older children with a basic immunity from former infection. This immunity was sufficient to prevent the spread of the virus to the central nervous system. With the advance of modern sanitation, opportunity for the free diffusion of the virus became more limited and a larger proportion of children passed through infancy without being infected. This provided a new means of spread for the virus by contact of susceptible children instead of transfer between partially immune adults. In this new biologic environment the virus gradually changed its character, becoming more infectious for children, less capable of infecting adults and more highly neurotropic. When the neurotropism is high, recent strains appear to be capable of overcoming an immunity which would have provided a solid protection against paralytic infection by strains of the earlier type. The present situation in a community such as Victoria is that there is probably still a good deal of the old type poliomyelitis virus infection, but that this is diminishing and is not often transferred to infants. The dominant strains are now spread like measles, essentially by child contact. A single infection does not provoke the appearance of antibody, and immunity to reinfection is probably only temporary. Previous infection with an antibody-producing strain does not insure immunity from paralysis by an epidemic strain. Infection occurs by inhalation or ingestion of contaminated saliva from an infected child. The primary focus is probably produced in the pharyngeal mucosa, and infection may reach the central nervous system by a variety of nerve paths. The olfactory route is probably an unusual one. Resistance to paralysis by epidemic strains develops with age, irrespective of specific immunologic factors. The Australian experience is that resistance to paralysis is greater in the warmer regions and that even a highly virulent strain may produce a small proportion of paralysis. For as yet unexplained reasons an epidemic may cease before all the susceptible population has been involved. On this basis the outlook for controlling the disease is not promising. Control by individual protection, vaccination, passive protection with human serum, chemical blocking of the olfactory area and protection by public health measures are all wanting. A close

investigation of the influence of climate and other environmental factors on the course of epidemics might suggest practical measures of individual protection. As epidemics nearly always terminate with the onset of cold weather, a "slowing down" of the epidemic by isolation and restriction of the aggregation of children may result in a large number of the susceptible being still untouched when climatic or other nonspecific factors terminate the epidemic. In six Melbourne districts during the 1937-1938 epidemic it was evident that every effort for the isolation of young children should be made to prevent infection.

South African Medical Journal, Cape Town

14:65-84 (Feb. 24) 1940

- Torula Meningitis, with Special Reference to Laboratory Findings: Two Cases. F. C. Gray.—p. 65.
Medical Establishments and Institutions at the Capc. P. W. Laidler.—p. 71.
William John Burchell: His Experiences as Consulting Physician While in Interior of Southern Africa, 1810-1815. Helen M. McKay.—p. 78.
Some Clinical Aspects of Tick Relapsing Fever in Natives in South Africa. D. Ordman and F. R. Jones.—p. 81.
Consideration of Life Cycle of Fasciola in South Africa. F. G. Cawston.—p. 84.

Chinese Medical Journal, Peiping

57:1-100 (Jan.) 1940

- Metastatic Tumors of Heart: Report of Two Cases Diagnosed Clinically. J. C. Hsiung, C. Szutu, C. K. Hsieh and V. T. Lieu.—p. 1.
*Medulloculture in Diagnosis of Typhoid and Paratyphoid Fevers: Analysis of Thirty-Eight Cases. C. C. Ling, S. S. Taur, P. C. Hsueh and S. Y. Yang.—p. 11.
Positive Medulloculture in Staphylococcal Septicemia: Report of Case. C. C. Ling, P. C. Hsueh, S. S. Taur and S. Y. Yang.—p. 27.
Transmission of Malaria Among Drug Addicts in Peiping: Demonstration of Malarial Parasites in Syringes Used for Intravenous Injections of Heroin. H. L. Chung, W. T. Liu, C. W. Wang and I. Chu.—p. 32.
Nonmetric Morphologic Characters of the Western Chinese Skulls. C. S. Lu.—p. 39.
Culture of Rickettsiae of Chinese Typhus in Yolk Sac of Developing Chick Embryo. J. Tchang and G. B. Mathews.—p. 47.
Use of Purified Protein Derivative in Tuberculin Patch Test. G. Ouyang.—p. 51.
Malaria in Western Yunnan, with Reference to the China-Burma Highway. R. C. Robertson.—p. 57.
Some Experiments on Resistance of Larvae of Latrine Fly, *Chrysomya Megacephala*, Against Chemicals. H. M. Jettmar.—p. 74.

Medulloculture in Diagnosis of Typhoid and Paratyphoid.—Ling and his colleagues made a detailed study of medulloculture in thirty-eight patients suffering from typhoid and paratyphoid. Of 110 medullocultures and an equal number of hemocultures performed on the thirty-eight patients, both showed positive growth in thirty-one instances and negative in thirty-three. Medulloculture yielded a positive growth in forty-four instances in which a hemoculture was negative. Only two medullocultures failed to demonstrate the organism in which hemoculture was positive. The average time required for growth in medullocultures was shorter than for blood cultures, indicating heavier infection with more organisms in the bone marrow than in the blood. Medulloculture makes earlier bacteriologic confirmation of the clinical diagnosis possible. In typhoid the main agent of defense is the reticulo-endothelial cell. Since the bulk of reticulo-endothelial tissue is situated in the bone marrow, spleen and liver, not only are the characteristic pathologic changes to be found there but the invading organisms as well. Most of the positive growths from the sternal marrow and blood occur during the febrile period. With medulloculture the organisms may still be isolated when the temperature has been normal for two weeks. This persistence of the bacillus in the bone marrow may explain the relapses of typhoid and paratyphoid. The bone marrow serves as a depot of *Bacillus typhosus* and *Bacillus paratyphosus* to the circulating blood. The presence of bacilli in the bone marrow is not responsible for the clinical symptoms although it undoubtedly signifies active infection. But when the bacilli are liberated into the blood stream and endotoxins are set free, the foreign proteins in the blood give rise to fever and other symptoms and signs of toxemia. Medulloculture has thus possibly opened a new field in clinical investigation of typhoid by enabling one to determine the possibility of relapse. An etiologic diagnosis may still be established in patients seen for the first time as late as two weeks after the acute stage is over.

Gynécologie, Paris

38:517-564 (Sept.-Oct.) 1939

- *Diethylstilbestrol, Synthetic Estrogenic Substance. J. A. Huet, R. J. Comte and A. D. Herschberg.—p. 517.
Grave Familial Icterus of the Newborn: Case. H. Vertruyen, F. Liry and L. Vandiest.—p. 553.

Diethylstilbestrol, Synthetic Estrogenic Substance.—Huet and his associates employed diethylstilbestrol in forty-six cases of gynecologic disorder. The substance was found to be effective in genital infantilism, in certain forms of oligomenorrhea and dysmenorrhea, in functional disorders of the menopause and in a number of hypophysis-ovarian disturbances. The treatment was successful in 77 per cent of the cases of menstrual dysfunction and in 82 per cent of menopausal disturbances. In the latter it counteracted the hot flushes, the profuse sweats and the vasomotor symptoms. The untoward secondary effects of this treatment were few. In 10 per cent of the cases the complications were benign. They consisted of attacks of weakness and nausea, which disappeared in the course of treatment. These complications were observed especially in women of the premenopausal and menopausal age. In about 3 per cent of the cases total gastric intolerance existed but its symptoms ceased when the medication was discontinued. The therapy with the synthetic estrogenic substance has advantages over that with the natural estrogens. Diethylstilbestrol is highly effective when administered by mouth, is easily handled and is relatively inexpensive. The fact that it is a powerful therapeutic agent necessitates an exact etiologic diagnosis and close clinical supervision in order to avoid disappointments. The authors recommend a dosage of 2 mg. of diethylstilbestrol daily given in two doses (morning and evening), far from meals, from the eighth to the eighteenth day, counting from the first day of the menstrual period. If an immediate menstrual flow is the object, the substance can be given for three days before the presumed onset of menstruation in a dose of 5 mg. daily. In the presence of hypophysis-ovarian disturbance 3 mg. daily for three days is recommended, beginning with the second day of menstruation. In cases of dysmenorrhea caused by uterine hypoplasia, 5 mg. is given on the day before the onset of the menstrual flow. In certain oligomenorrheas the dose is reduced to 1 mg. daily for ten days, in order to avoid too abundant hemorrhages.

Gynécologie et Obstétrique, Paris

40:283-394 (No. 4) 1940. Partial Index

- ***"True Prolonged Pregnancies" and Their Significance. A. Fruhinsholz and J. Richon.—p. 283.
Parturition in Sportswomen. J.-L. Audebert.—p. 294.
Endometriosis and Pregnancy. L. Portes and J. Varangot.—p. 298.
Anatomoclinical Classification of Cervicitides. P. Durel, V. Ratner and A. Deroin.—p. 305.

Prolonged Pregnancy.—Fruhinsholz and Richon discuss the etiology of prolonged pregnancies, with special reference to familial and individual involvements, on the basis of 128 (0.65 per cent) cases in 19,893 deliveries, thirteen (1 per cent) of the cases terminating fatally. Only those pregnancies were considered as prolonged that extended beyond the 300th day after the last verified menstruation, with a maximal terminal range of 351 days. Ninety-two deliveries (about 72 per cent) occurred between the 301st and 314th day, one on the 351st day. The authors regard prolonged pregnancies not merely as accidental variations of normal pregnancies but as possessing distinct pathologic implications, discoverable in the family and personal history of the patient. Among the pathologic factors observed in eighty-one (63 per cent) of the cases were found premature deaths and insanity (fourteen cases), multiple infant mortality (27.7 per cent) and coexisting physical abnormalities such as obesity, strabismus, exophthalmic goiter and epilepsy in sixteen cases. The body weight of the children at birth exceeded normal standards (in seventy cases it was between 3,000 and 6,000 Gm.) but no correlation was noted between greater body weight and in overdue pregnancies also surpassed the normal death rate, in the child weighing 6,000 Gm. died in utero). Placental deaths (the child weighing 6,000 Gm. died in utero). Placental weight likewise showed a higher curve. In fifty-five cases it was between 600 and 1,000 Gm. Infant mortality (10 per cent) was equally divided between male and female infants but stood in no relation to the number of days of the child's intra-uterine existence. No deaths were due to obstetric interventions of a

mechanical nature. The personal history of the patients disclosed delayed initial menstruation (in thirty-nine cases between the fifteenth and twenty second year) and delayed conception (in twenty-three of thirty-four primiparas from six months to five years after marriage, once after thirteen years). These retardations are attributed by the authors to an endocrine insufficiency of a hypophysial character. The average duration of labor was also higher, from eighteen to twenty-one hours in primiparas, ten and one half hours in multiparas. Only six of the 128 patients reacted positively to the Wassermann test. Yet syphilis, though inconspicuous in the clinical picture, is believed by the authors to be ultimately and hereditarily chargeable with the various familial and individual pathologic conditions noted in these cases. Fetal malformations were relatively frequent. Tuberculosis and alcoholism were infrequently observed. Primiparity and multiparity were found etiologically to be of no significance. Intervention was resorted to only in exceptional cases and was limited to endocrine medication.

Presse Médicale, Paris

48:233-248 (Feb. 28-March 2) 1940

Reflections Preparatory to Experimental Research on Role of Sympathetic in Articular Pathology. S. de Sèze, G. Guiot and J. Serane. —p. 233.

*Oral Treatment of Trachoma with P-Aminophenylsulfamide. F. Jasseron and G. Morard.—p. 234.

*Sulfanilamide Derivatives in Treatment of Trachoma. L. Polciff.—p. 235.

*Improved Process of Method of Armand-Delille to Determine Presence of Koch Bacilli in Gastric Contents. L. Koganas and D. Nakanas.—p. 236.

Oral Treatment of Trachoma with P-Aminophenylsulfamide.—Jasseron and Morard call attention to oral treatment of trachoma with p-aminophenylsulfamide and point out that in their experience this substance showed the best results in the chemotherapeutic treatment of trachoma. The authors treated nearly 200 patients. Subjective symptoms, such as pain, photophobia and lacrimation, disappeared in forty-eight hours; pannus and infiltration of the cornea were resorbed in eight days; corneal ulcers acquired epithelium in thirty-six hours; cicatrization was accelerated and clinical recovery took place in three weeks in 75 per cent of the cases. Secondary infections with Weeks's bacillus, diplobacilli of Morax, pneumococci and gonococci were sterilized in four days. The authors recommend for adults ingestion of 20 Gm. in thirteen days, for children aged from 8 to 12 years 12 Gm. in twelve days, and for children aged from 4 to 8 years 7 Gm. in twelve days in decreasing dosage. Limited local treatment is advised.

Sulfanilamide Derivatives in Treatment of Trachoma.—According to Polciff, instillation of sulfanilamide derivatives into the eye caused conjunctival hyperemia with dilatation of the vessels, while subconjunctival injections were followed by intense hemorrhage at the place of injection. Repeated instillations and subconjunctival injections in five cases were not followed by sterilization of the bacterial flora of the conjunctival sac, while silver nitrate and ethoxydiamino-acridine lactate produced rapid diminution of the bacteria and general improvement. Intramuscular injections alternated with oral administration of sulfanilamide derivatives were followed by notable decrease of bacteria in the conjunctival sac; however, the final results were not satisfactory. Oral and intramuscular administration of sulfanilamide derivatives together with the usual treatment of trachoma produced very satisfactory results in fifteen malignant cases. Pallor and rapid loss of weight in the course of sulfanilamide therapy are symptoms of intolerance to the drug.

Improved Method of Determining Tubercle Bacilli in Gastric Contents.—Koganas and Nakanas point out that tuberculous patients do not always expectorate but may swallow their sputum or else scanty pulmonary secretion may get into the stomach without provoking a cough. A considerable number of patients have Koch bacilli in the stomach. Examination of the gastric contents by the improved Armand-Delille method renders quick diagnosis possible. The method consists of examining the stained centrifuged residue of the gastric contents. In the absence of typical bacilli the residue is thoroughly mixed with equal parts of 4 per cent sodium hydroxide and after centrifugation the residue is neutralized with hydrochloric acid. Part of this is dried and is examined for Koch bacilli while

the rest is cultured or injected into guinea pigs. The authors examined 115 tuberculous patients with this method and found Koch bacilli in the stomach of most patients who did not expectorate. In only 26 per cent of the examined cases were the authors obliged to culture and inoculate guinea pigs. The authors regard this method superior to laryngeal smear or stool examination.

Monatsschrift für Psychiatrie und Neurologie, Basel

102:65-128 (No. 2) 1940

*Contributions to Vaccine Therapy of Radicular Symptoms in Tabes. L. von Angyal and K. Gyárfás.—p. 65.

Psychopathology of Simple Schizophrenias. J. Wyrsch.—p. 75.

Aspects of Extrapyramidal Motor System. E. Grünthal and K. Hartmann.—p. 107.

Vaccine Therapy of Radicular Symptoms in Tabes.—Von Angyal and Gyárfás used Hilgermann's spirochetal vaccine in nineteen cases of locomotor ataxia. The vaccine was injected subcutaneously into the anterior part of the thigh at intervals of two weeks. The initial dose was from 0.5 to 1 cc. When the reaction was too severe, the dose was reduced to 0.1 or 0.2 cc. The total number of injections varied between one and twelve. Reflex disturbances such as hypotonia and dysuria did not respond to the treatment. Complaints ascribed to radicular irritation reacted well. Shooting pains, present in fifteen cases, ceased altogether in five and were improved in nine. Gastric crises (eleven cases) responded nearly as well; they stopped altogether in two cases and there was an improvement in seven. Vesical and intestinal crises (one case each) were controlled for the time being. The impression was gained that intense local or focal reaction constitutes a favorable sign.

Policlinico, Rome

47:389-432 (March 11) 1940. Practical Section

*Treatment of Suppurative Mastitis and Acute Abscesses Without Incision. E. Pagliai.—p. 389.

Septicemia from Streptococcus Viridans of Dental Origin Without Endocarditis: Recovery of Patient. A. Fabris.—p. 403.

Treatment of Suppurative Mastitis Without Incision.—The treatment advised by Pagliai consists of repeated puncture of a breast abscess, aspiration of pus and injection into the cavity of an ointment made up of equal parts of pure cod liver oil and white petrolatum. He has obtained satisfactory results from this treatment in more than 100 cases. The first puncture is made with the aid of a 1 per cent procaine hydrochloride anesthesia of the superficial and deep tissues about the abscess. The following punctures are made through the route followed by the needle in the first puncture. The treatment is repeated every other day. It is discontinued altogether as soon as secretions assume a sanguineous appearance. Lactation is temporarily discontinued but is preserved. The breast is emptied every three hours with a breast pump and is dressed with warm wet compresses. If the nipple is fissured it is gently washed with boiled water after each withdrawal of milk and is dressed with cod liver oil ointment. As a rule, acute suppurative mastitis is controlled by this treatment in from one to two weeks, after which lactation is recommenced. Repeated puncture of the abscess, aspiration and injection of cod liver oil ointment gave prompt satisfactory results in acute abscesses and acute suppurative lymphadenitis.

Arch. f. Ohren-, Nasen- u. Kehlkopf., Berlin

147:1-68 (Jan. 9) 1940

Antagonisms of Reflexes of Neck and of Semicircular Canals in Movements of Human Eyes. A. Güttich.—p. 1.

Clinical Aspects of Tumors of Fourth Ventricle, Determination of Direction of Sound in Case of Intact Cochlear and Missing Vestibular Nerve. A. Güttich.—p. 5.

Diagnostic Value of Oto-Audion in Hardness of Hearing with Normal Tympanic Membrane. W. Herrmann.—p. 8.

*Combination of Pigment Degeneration of Retina with Deaf-Mutism. H. Weber.—p. 38.

Pulsating Mucocoele. H. Richter.—p. 61.

Orbital Emphysema Caused by Fracture of Ethmoid Bone After Head Hit Surface of Water During Diving. A. Meyer zum Gottesberge.—p. 66.

Pigment Degeneration of Retina with Deaf-Mutism.—Weber discusses the question of the combined appearance of degeneration of the pigment of the retina with deaf-mutism being due to an internal causal connection or to hereditary anomalies

existing side by side. A family in which pigment degeneration and deaf-mutism concurred was studied. The genealogic tree of the family failed to furnish an answer to the question of how the combined two disorders were to be explained. It is noteworthy that the siblings who are affected suffer from the two disorders simultaneously. This combined appearance creates an impression that the two defects belong together, the more so since in the three cases in which the defects occurred the vestibular nerve did not respond to stimulation. However, the assumption of the common origin of the two hereditary disorders is contradicted by the fact that the pigment degeneration of the retina has been known to concur not only with the recessive deaf-mutism but also with the dominant hardness of hearing of the inner ear. The combination of deaf-mutism with pigment degeneration has raised the question of whether it is due to a hereditary combination elicited by a common gene. The opinions on this subject are contradictory. The author reviews the factors cited in favor of a unitaristic origin as well as those favoring a separate and independent hereditary transmission. Indicative of an independent hereditary transmission are the essential difference of deaf-mutism and pigment degeneration, the fact that in most instances the two disorders appear separately and that the combination is the exception, the promotion of the combination by blood relationship of the parents, the concurrence of feeble-mindedness with one or the other or with both of the defects and the occurrence of other combinations. Nevertheless the author feels that the acceptance of an independent and separate hereditary transmission must be made with reservations, because the examined material is insufficient to permit a complete survey of the problem. The final answer will probably be similar to that given by Siemens, namely that the apparent correlation of recessive hereditary defects in the children of parents related by blood is due to identical descent, because, since all recessive defects are more frequent with inbreeding, it is self evident that they frequently concur among siblings or even in the same person.

Zeitschrift für Immunitätsforschung, Jena

97:273-364 (Jan. 7) 1940. Partial Index

- Experimental Investigations on Serologic Characteristics of Fraenkel's Gas Bacillus (*B. perfringens*). F. Nagler.—p. 273.
 Role of Antigen Vi in Variation of Typhoid Strains. K. Rauss.—p. 281.
 Investigations on Passive Active Immunization Against Diphtheria. J. Bjord-Nielsen.—p. 306.
 Comparative Investigations on Toxic and Antigenic Characteristics of Soluble Bacterial Constituents Obtained at Low Temperatures from Typhoid, Paratyphoid, Enteritis and Dysentery Group. R. Haas.—p. 317.
 Heuristic Theory of Manifestations of Immunization and Anaphylaxis. P. Jordan.—p. 330.
 *Experiences and Results with Chemotherapeutic Modification of Venereal Lymphogranuloma and Other Virus Diseases. F. Bär.—p. 344.

Chemotherapy of Venereal Lymphogranuloma and Other Virus Diseases.—Bär resorted to intracerebral inoculation of mice with emulsions of the brain substance of mice that had a severe form of venereal lymphogranuloma. The comparative study of various derivatives of the sulfanilamide group was done by repeated subcutaneous injections of the preparation to be tested. The first dose was usually administered one hour after the infection with the virus of venereal lymphogranuloma. The results of the investigations are recorded in graphs, which reveal that a number of sulfanilamide preparations exert a chemotherapeutic influence on experimental venereal lymphogranuloma. Among the large number of preparations tested, the most effective were dimethyldisulfanilamide, monomethyldisulfanilamide, and disulfanilamide, azosulfamide, a soluble form of the latter, benzylsulfanilamide, sulfapyridine, the azo body 33 of Girard and others. The repeated administration of these compounds either prolonged the life of the animals or produced complete survival, in contradistinction to the untreated animals, which generally died. After pointing out that the sulfanilamide preparations have been found effective also in human infections with venereal lymphogranuloma, the author suggests that the therapeutic action is probably due to the fact that the injected preparation inhibits the development of the virus and that after this impairment the defensive powers of the organism complete the destruction. The author was able to corroborate the observation that in some of the animals the virus remains viable for a time after the administration of the

preparation and that some of the animals which were cured developed an active immunity against a renewed inoculation with the virus of venereal lymphogranuloma. The critical evaluation of results obtained thus far by various investigators in the chemotherapy of virus diseases show that only in venereal lymphogranuloma, in trachoma and in certain symptoms produced by the Rickettsia group of organisms can a noticeable therapeutic effect be observed; all other experimental results still lack verification.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam 84:905-1012 (March 9) 1940. Partial Index

- Task of Internist in Treatment of War Injuries. J. G. G. Borst and H. P. Veening.—p. 914.
 *Development of Resistance to Sulfapyridine in Strains of Pneumococci in Vivo. J. Mulder, R. van den Berg and G. Eimers.—p. 923.
 *Saline Enema in Postoperative Intestinal Paralysis. J. J. Suren.—p. 928.
 Endophlebitis Hepatica Obliterans. P. Formijne.—p. 932.
 Synthetic Estrogenic Substances in Gynecology. W. M. J. Schellekens.—p. 940.

Resistance to Sulfapyridine in Pneumococci.—Mulder and his associates demonstrated in experiments on mice that a strain of pneumococci (type I in America) which is highly sensitive to sulfapyridine may rapidly develop a resistance against that substance. At first the resistant strain is less virulent than the sensitive strain, but after a few mouse passages it regains its maximal virulence. Resistance may be complete in the presence of full virulence. In the early stages of resistance the strain may cause a prolonged bacteremia in spite of treatment with sulfapyridine; later this phenomenon disappears. The possibility of the development of a resistance to chemotherapy must be considered in the clinic. Severe pneumococcal infections should be treated from the onset with large doses of sulfapyridine, and type specific antiserum could perhaps be combined with it.

Saline Enema in Postoperative Intestinal Paralysis.—The large number of remedies recommended to stimulate peristalsis in postoperative ileus indicates, according to Suren, the inadequacy of these measures. A comparatively simple and yet highly effective procedure employed by Stahnke in Ludwigshafen, also described by Genkin and Miljawskaia (*Arch. f. klin. Chir.* 176:156 [Aug. 24] 1933; abstr. *THE JOURNAL*, Nov. 4, 1933, p. 1521) was employed by the author in several hundred cases. Two tablespoons of sodium chloride is dissolved in 150 cc. of lukewarm water and introduced as a drop enema high into the rectum. The enema may be effective before it has been completed, frequently after five minutes and always within fifteen minutes. However, the sodium chloride enema remains ineffective when a mechanical obstruction exists. In such cases the enema is repeated after an hour and, if ineffective, surgical treatment is decided on. Thus the sodium chloride enema is also of value in the differential diagnosis. The method had not received the attention it deserves.

Nordisk Medicin, Gothenburg

5:117-164 (Jan. 27) 1940. Partial Index

Hospitalstidende

- Hernias of Omental Bursae (Together with Report of Case of Transmesocolic Hernia of Omental Bursa). J. C. Christoffersen.—p. 117.
 Duodenojejunal Hernias (Together with Report of Case of Treitz's Hernia). O. Povlsen.—p. 122.
 Determination of Serum Phosphatase and Serum Citric Acid in Disorders of Liver and Biliary Tract. (Preliminary Report.) H. Buch.—p. 125.
 *Value of Takata Reaction in Hepatic Disorders. E. Godtfredsen.—p. 131.

Takata Reaction in Hepatic Disorders.—Godtfredsen finds that a positive Takata reaction, when disorders with hyperglobulinemia, which are relatively rare, can be excluded, points to parenchymatous injury of the liver. The reaction is negative in even long-continued obstructive jaundice. In cirrhosis the reaction is positive in between 90 and 95 per cent of the cases, often in marked degree. In acute hepatitis the test is useful in prognosis, a continued negative result during the first ten days after appearance of the jaundice indicating a favorable course; conversely, a positive reaction is most often seen in cases in which the possibility of transition into chronic hepatitis (cirrhosis) is likely.

THE STUDENT SECTION

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Devoted to the Educational Interests and Welfare of Medical Students, Interns and Residents in Hospitals

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An Organized Educational Service for Interns

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DULUTH, MINN.

One of the important trends in medical education today is forecast by an unusual interest and activity of medical organizations in the improvement of postgraduate training and especially of internship training. The ever increasing pressure of the American Medical Association combined with a rapidly growing interest of medical school authorities in behalf of their graduates will undoubtedly bring about widespread changes in this field of education. The growing disparity between the number of internships and the available interns for these positions is being used as an effective lever for bringing about the realization of a more extensive teaching responsibility on the part of hospital authorities.

Even as a medical school predetermines the nature of its graduates, so a hospital must plan its educational program knowing the purpose of its efforts. Internships of the general rotating type must of necessity be designed to train men for the general practice of medicine. To this end, emphasis must be placed in the fields of internal medicine, surgery, obstetrics, pediatrics and clinical pathology. To best motivate such a program, an inspiring teacher in each of these branches of medicine should be in a controlling position and assume much of the responsibility of providing a minimum of instruction in a given specialty and at the same time collaborating with the other four teaching supervisors.

It must be assumed that the intern has covered the field of didactic medicine and that he is now ready to learn how to apply himself. There is no question that this is best accomplished by his own efforts in attacking one diagnostic and therapeutic problem after another guided by the constant criticism of attending physicians. To facilitate this better in our private hospital, where it is impossible for the intern to make rounds with more than a few of the 125 staff physicians, a special "Interns' Educational Sheet" is inserted in each chart. Questions, comments and personal notations are put on this sheet including the interns' suggested

diagnostic procedures and therapy. The sheet is later removed from the chart and given to the intern. The interns are required to make routine progress notes on all patients. Furthermore, meetings are scheduled during the year at which the individual supervisors of intern instruction review many selected charts of discharged patients, criticizing the interns' notes with a free hand and at the same time making important practical observations.

A SCHEDULE OF CONFERENCES

In the majority of private hospitals and even in many teaching institutions, too much is being left to chance and the initiative of the intern. A schedule of a minimum number of talks or conferences covering applied medicine for the general practitioner should be drawn up by the supervising committee (a sample schedule is shown at the end of the article). This will not interfere in the slightest with the additional self-educational efforts of those interns endowed with sufficient interest, initiative and energy. In fact, it will stimulate the less inclined to a greater activity in the art of medicine. By concentrating pertinent subjects in the first few weeks of the internship, we hope to train good interns. After that the talks are scheduled every Monday and Tuesday at 5 p. m. Subjects directly related to his imminent entrance into general practice are concentrated mainly during the last two months. Every effort is made to avoid formal lectures. The subjects of different specialties are intermixed with the hope of teaching the student how to study diseases in the disorderly manner in which they will be presenting themselves in general practice. In a private hospital the responsibility for these many conferences is best spread widely among those members of the medical staff who are most suited for the subjects, rather than putting too great a burden on a small group. We have distributed the number of subjects in the various specialties as follows: medicine twenty-five, surgery twenty, obstetrics eleven, pediatrics six,

roentgenology ten, other specialties fifteen and miscellaneous fifteen.

Thursday evenings, throughout most of the year, are devoted to interns' clinical-pathologic conferences at which the interns rotate in presenting the more difficult diagnostic cases which they have helped study. Each case is discussed in great detail. About fifteen minutes is devoted to projecting the more important tissue sections from autopsy and surgical specimens of the preceding week on a screen with a brief comment on clinical and pathologic manifestations. Staff physicians attend these informal meetings and join in the discussions.

Each intern is scheduled to review the hospital's medical periodicals during an assigned month. Lively and stimulating comments will frequently develop between interns and staff physicians at these seminars.

The interns give case presentations at our monthly clinical-pathologic conferences before a large group of physicians. The training is valuable and even with this limited experience there is a decided improvement in the intern's ability to prepare for and speak before a formal gathering. His required attendance at monthly staff meetings not only has its scientific values but also gives him an immediate understanding of the importance of organization and cooperation with his fellow practitioners.

RATIO OF INTERNS TO ADMISSIONS

The most serious error a hospital can make is to have too few interns for the volume of work expected of them. This type of exploitation makes acceptable work impossible and stifles individual initiative. We feel that nine interns is a minimum number for our close to 7,000 hospital admissions. The Council on Medical Education and Hospitals advises one intern for every 500 admissions. On the other hand, there may be such a thing as having too many interns.

A word should be said on the importance of two features of the hospital's laboratory service in relation to intern training, a field sometimes sadly neglected. Our interns obtained permissions for necropsies on 75 per cent of the hospital deaths last year principally because of what they learned from the discussions on both clinical and pathologic aspects of each case at the autopsy table. Frequent demonstrations of practical anatomy add to the intern's dividends. Special sessions are scheduled each year for surgical technic on cadaver material demonstrated by a surgeon. The intern in the laboratory service is encouraged to replace the diener and sew up the necropsy incisions using surgical technic and materials. These practices are not intended to make surgeons out of our house officers; in fact, it is very likely that they will not be permitted to perform a single major operation during their internship.

It is fundamental to the type of medicine practiced in a hospital and therefore to the teaching of interns to remove the financial barrier of laboratory costs. A flat rate fee of from \$3 to \$5 in a hospital admitting 3,000 or more patients a year will cover all laboratory tests and will provide a service equal to that of larger medical centers for physicians, their poorest patients, and interns.

SUMMARY

Hospitals accepting the responsibility of intern training should be considered extensions of medical schools and should adapt many of their methods of teaching. Where an internship is of the general rotating type, a controlling group of teachers in the fundamental subjects of medicine, surgery, obstetrics, pediatrics and clinical pathology should arrange a schedule of conferences, seminars and medical meetings as much as a year in advance. The curriculum should stress only those subjects which will be of practical value to a general practitioner of medicine. To become a specialist in any field, three or more years of additional training is necessary. As to the numerous details of arranging a comprehensive program of this nature, there should be considerable leeway to allow for local peculiarities. However, lax methods, leaving too much to chance and the initiative of the intern, must give way to orderly, planned teaching methods, and the common practice of exploitation of interns must cease.

SCHEDULE OF REQUIRED CONFERENCES, SEMINARS AND MEDICAL MEETINGS FOR INTERNS (Time 5 to 6 p. m. unless scheduled otherwise)

- July 1. Superintendent's introduction.
Mr. James McNece
2. Introduction to surgical department; gastric decompression, hypodermoclysis, intravenous therapy, rectal tube, Miller-Abbott tube, proctoclysis, surgical dressings.
Dr. K. E. Johnson
3. Surgical technic and surgical intern; conduct of operating assistants.
Dr. T. L. Chapman
5. Miscellaneous technic: circumcisions, transfusion, spinal puncture, oxygen therapy.
Dr. Stewart Clapp
8. Introduction to obstetric department; delivery room technic.
Dr. R. J. Moc
9. Introduction to laboratory department; functions of the laboratory intern, mimeographed directions for common tests, location of apparatus and reagents.
Dr. A. H. Wells
10. Introduction to pediatric department; pediatric history, physical examination.
Dr. E. E. Barrett
11. Orthopedic apparatus and its application (demonstration).
Dr. M. H. Tibbets
12. Neurologic and psychiatric examination and history.
Dr. L. R. Gowan
15. Malpractice suits.
Mr. John J. Fee
16. Recognition and treatment of shock.
Dr. P. S. Rudic

17. Postoperative treatment in abdominal surgery.
Dr. C. H. Mead
 18. Diabetic emergencies. Dr. D. W. Wheeler
 19. Caldwell and Molloy pelvimetry.
Dr. K. E. Johnson
 22. Organic and postpartum uterine bleeding.
Dr. W. A. Coventry
 23. Treatment of burns and skin grafting.
Dr. F. J. Elias
 29. Significance of hematologic tests.
Dr. A. H. Wells
 30. Care of the premature. Dr. W. C. Martin
- Aug. 5. X-ray demonstrations of diseases of skull, mastoids and sinuses. Dr. Gage Clement
6. Anesthetics and analgesics during labor.
Dr. P. N. Bray
 12. X-ray demonstration of bone fractures.
Dr. Gage Clement
 13. Hospital medical literature review for July.
J. J. Halbert
 19. X-ray demonstration of bone tumors.
Dr. Gage Clement
 20. Stricture of esophagus and alkaline management of peptic ulcers. Dr. L. L. Merriman
 26. X-ray demonstration of diseases of stomach and esophagus. Dr. Gage Clement
 27. The hemorrhagic diseases. Dr. W. D. Coventry
- Sept. 2. X-ray demonstration of diseases of intestinal tract and gallbladder. Dr. Gage Clement
3. The acute surgical conditions of the abdomen.
Dr. L. A. Barney
 5. Interns' clinical-pathologic conference; case presentation. W. F. Vaudreuil
 9. X-ray demonstration of diseases of genito-urinary tract. Dr. Gage Clement
 10. Review of medical charts to date.
Dr. S. H. Boyer Jr.
 12. Interns' clinical-pathologic conference; case presentation. E. C. Strauss
 16. X-ray demonstration of pulmonary tuberculosis.
Dr. Gage Clement
 17. Care of the feet. Dr. R. T. Seashore
 19. Monthly clinical-pathologic conference, 7:20.
Monthly hospital medical staff meeting, 8:20.
 23. X-ray demonstration of other lung diseases.
Dr. Gage Clement
 24. Review of surgical charts to date.
Dr. K. E. Johnson
 26. Hospital medical literature review for August.
E. Emerson
 30. X-ray demonstration of diseases of the heart and mediastinum. Dr. Gage Clement
- Oct. 1. Surgical treatment of pulmonary tuberculosis.
Dr. A. Hedberg
2. Monthly pediatric-pathologic conference, 5:15.
 3. Interns' clinical-pathologic conference; case presentation. E. Steiger
 7. X-ray demonstration of miscellaneous diseases.
Dr. Gage Clement
 8. Infant feeding. Dr. O. W. Rowe
 10. Interns' clinical-pathologic conference; case presentation. D. R. Lannin
 14. Surgical anesthesia. Dr. W. A. Swedberg
 17. Monthly clinical-pathologic meeting, 7:20.
Monthly hospital medical staff meeting, 8:20.
21. Review of pediatric charts to date.
Dr. E. E. Barrett
 22. Practical suggestions on syphilis.
Dr. W. E. Hatch
 24. Interns' clinical-pathologic conference; case presentation. W. K. Hartford
 28. Dermatologic problems for general practitioners.
Dr. F. T. Becker
 29. Hypertension. Dr. S. G. Sax
 31. Hospital medical literature review for October.
William D. Cleaves
- Nov. 4. Practical suggestions on diagnosis and medical treatment of pulmonary tuberculosis.
Dr. A. T. Laird
5. Review of obstetric charts to date.
Dr. R. J. Moe
 6. Monthly pediatric-pathologic conference.
 7. Interns' clinical-pathologic conference; case presentation. J. J. Halbert
 11. Anemias. Dr. S. H. Boyer Jr.
 12. Bright's disease in practice. Dr. Stewart Clapp
 14. Interns' clinical-pathologic conference; case presentation. E. Emerson
 18. Minor surgery. Dr. G. C. MacRae
 19. Medical ethics, also the Harrison Act.
Dr. F. H. Magney
 21. Monthly clinical-pathologic conference, 7:20.
Monthly hospital medical staff meeting, 8:20.
 25. Traumatic and common eye diseases (demonstration). Dr. M. F. Fellows
 26. Actual preparation of diabetic diet (demonstration).
Miss L. Almstrom
 28. Interns' clinical-pathologic conference; case presentation. William T. Cleaves
- Dec. 2. Actual preparation of other diets (demonstration).
Miss L. Almstrom
4. Monthly pediatric-pathologic conference.
 5. Hospital medical literature review for November.
C. Christensen
 9. Illustrated dermatologic diseases.
Dr. E. Z. Shapiro
 10. Diabetes mellitus. Dr. Richard Bardon
 12. Interns' clinical-pathologic conference; case presentation. C. Christensen
 16. Treatment of common cold and grip.
Dr. S. H. Boyer Jr.
 17. The prostatic patient. Dr. A. N. Collins
 19. Monthly clinical-pathologic conference, 7:20.
Monthly hospital medical staff meeting, 8:20.
- Jan. 6. Toxemias of pregnancy. Dr. A. O. Swenson
7. Review of medical charts to date.
Dr. S. H. Boyer Jr.
 8. Pediatric-pathologic conference, 5:15.
 9. Interns' clinical-pathologic conference; case presentation. W. F. Vaudreuil
 13. Clinical electrocardiography. Dr. R. L. Nelson
 14. Autonomic aspects of vascular balance.
Dr. R. L. Nelson
 16. Annual medical staff meeting, 7:30.
 20. Spinal fluid examination; interpretation.
Dr. A. H. Wetts
 21. Blood protein deficiency. Dr. S. H. Boyer Jr.
 23. Hospital medical literature review for December.
W. F. Vaudreuil

27. Gallbladder diseases. Dr. P. S. Rudie
28. Anal and rectal diseases. Dr. W. G. Strobel
30. Interns' clinical-pathologic conference; case presentation. E. C. Strauss
- Feb. 3. Carcinoma of colon. Dr. L. A. Barney
4. Practical observations on head injuries. Dr. L. R. Gowan
5. Pediatric-pathologic conference, 5:15.
6. Interns' clinical-pathologic conference. E. Steiger
10. Surgical diseases of stomach and duodenum. Dr. M. G. Gillespie
11. Kidney function tests; interpretation. Dr. A. H. Wells
13. Interns' clinical-pathologic conference; case presentation. J. J. Hartford
17. Diseases of sinuses; therapeutic suggestions for general practitioner. Dr. A. C. Hilding
18. Thyroid diseases. Dr. T. O. Young
20. Monthly clinical-pathologic conference, 7:20. Monthly hospital medical staff meeting, 8:20.
24. Practical observations on common diseases of the nervous system. Dr. L. R. Gowan
25. Employees' compensation laws and disability evaluation (case demonstrations). Dr. N. J. Braverman
27. Interns' clinical-pathologic conference; case presentation. J. J. Halbert
- March 3. Most common dental disorders, also dental specialties. George Lawson, dentist
4. Foci of infection and tonsillectomy. Dr. A. G. Athens
5. Pediatric-pathologic conference, 5:15.
6. Hospital medical literature review for February. E. C. Strauss
10. Diagnostic procedures in genito-urinary tract. Dr. M. A. Nicholson
11. National, state and county medical societies. Dr. W. A. Coventry
13. Interns' clinical-pathologic conference; case presentation. E. Emerson
17. Federal, state, county and city health departments. Dr. C. A. Scherer
18. "State medicine." Dr. A. J. Spang
20. Monthly clinical-pathologic conference, 7:20. Monthly hospital medical staff meeting, 8:20.
24. Geriatrics. Dr. E. L. Tuohy
25. Practical observations on cardiac diseases. Dr. F. J. Hirschboeck
27. Interns' clinical-pathologic conference; case presentation. William T. Cleaves
31. Useful nursing procedures for a general practitioner. C. Overley, R.N.
- April 1. Management of dystocia and forceps. Dr. J. R. Manley
2. Pediatric-pathologic conference, 5:15.
3. Interns' clinical-pathologic conference; case presentation. C. Christensen
7. Gastrointestinal disturbances in children. Dr. S. N. Litman
8. Convulsive states in children. Dr. E. E. Barrett
10. Hospital medical literature review for March. E. Steiger
14. Vaccination and preventive medicine in pediatrics. Dr. C. H. Schroder
15. Otitis media, mastoiditis and the general practitioner. Dr. Archie Olson

17. Monthly clinical-pathologic conference, 7:20. Monthly hospital medical staff meeting, 8:20.
21. Demonstrated physical therapy technic (with outlines). Miss Helen Sparling, physical therapist
22. Acute surgical conditions of the abdomen. Dr. C. H. Mead
24. Interns' clinical-pathologic conference; case presentation. W. F. Vaudreuil
28. Orthopedic problems in general practice. Dr. M. H. Tibbells
29. Practical therapeutics (prescriptions). Dr. F. H. Magney
- May 1 Interns' clinical-pathologic conference; case presentation. E. C. Strauss
5. Practical therapeutics (prescriptions). Dr. F. H. Magney
6. Allergy in office practice. Dr. C. M. Smith
7. Pediatric-pathologic conference.
8. Interns' clinical-pathologic conference; case presentation. E. Steiger
12. Venereal diseases in general practice. Dr. G. C. Doyle
13. Office hematology. Dr. P. F. Eckman
15. Monthly clinical-pathologic conference, 7:20. Monthly hospital medical staff meeting, 8:20.
19. Practical endocrinology. Dr. M. O. Wallace
20. Functional bleeding of uterus. Dr. S. C. Mueller
22. Hospital medical literature review for April. R. R. Lannin
26. Office gynecology. Dr. M. O. Wallace
27. Home obstetrics. Dr. D. F. Pennie
- June 2. Office gynecology. Dr. M. O. Wallace
3. Infections of the hand. Dr. F. J. Elias
9. Accounting, collections and income tax for physicians (with bookkeeping blanks). Mr. Richard Fox, accountant
10. Medical economics. Dr. C. M. Smith
16. Doctor's office equipment. Dr. M. O. Wallace
17. Starting in country practice. Dr. R. H. Puumala
19. Monthly clinical-pathologic conference, 7:20. Monthly hospital medical staff meeting, 8:20.
23. Doctor's medical kit. Dr. L. L. Merriman
24. Office gynecology. Dr. R. J. Moe

The Doctor and the Community

It is time that every physician study the social and economic forces influencing the life of his patient as well as the technical, clinical and physiologic disturbances affecting his physical and mental condition. Both react on each other. It is time that every doctor realize that he is a vital part of the community in which he lives and must play his part as a citizen in civic affairs, aiding in solving the social, economic and health problems peculiar to his particular community. If he does not do this, he should not be surprised if nonmedical persons have more influence on the health aspects of civic matters than he has. It should not be forgotten that society, not the medical profession, will ultimately determine the kind of medical service it will have. It is the duty of the medical profession to educate society so it will demand the best that medical science can offer, and this can only be done if every doctor is awakened to this larger responsibility and seizes every opportunity to enlighten both his patients and his community.—Wahl, H. R.: Community Aspects of Medicine, *J. A. Am. M. Coll.* 13: 14 (Jan.) 1938.

The Case of James

REGINALD FITZ, M.D.

BOSTON

James came to Boston from County Cork shortly after the Spanish War, as green a youngster as any greenhorn that ever left the shores of Ireland, finely built, with an engaging manner, a grand brogue and a sound knowledge of horseflesh. In some way he became acquainted with my father, and after Charles died and old Louis got run away with and smashed up the Ellis wagon—a unique vehicle that was inherited by my father from his teacher, Dr. Calvin Ellis—James became our coachman.

James and I grew to be close friends. The day that remains best fixed in my memory of him as typifying the kind of Irish unrespectability which always was part of his charm is the one at Prides Crossing, forty summers ago. He and I had manufactured a riding tandem, with the venerable gray Major in the lead—a dignified rascal with a docked tail, trained to kick with fury when his back was tickled behind the saddle—and Phyllis following. Phyllis was a docile, long-tailed, clumsy creature, never a saddle horse, usually of cowlike placidity, and a perpetual disappointment. She must have had a congenital heart lesion, for she never had any wind. She was out of Bess, my father's favorite in the days when the Ellis wagon would draw up at 18 Arlington Street early in the morning to take him off to the Massachusetts General Hospital, and by an unremembered sire recommended by one of his pupils in the class of 1882, Dr. Goss, of Lakeport, N. H. Dr. Goss and my father respected and amused each other, and between consultations, I suspect, were likely to swap tall yarns about trottin' horses and other things not strictly medical.

On the day I remember so well, James and I decided to put the tandem over a jump, and because Phyllis was clumsy we decided to give her a lesson. We constructed a 3 foot hurdle, which we nailed solid, and then we started, Major in the lead, Phyllis behind with me on top of her, and James with a great stick in his hand, to do whatever might be needed in the way of coaxing. Major got over all right but Phyllis misjudged, crossed her legs when she tried to take off, turned a somersault, and tossed me through what seemed at least a 15 foot arc. That wasn't the worst of it; James and I might have kept that little contretemps a secret from the family, but Major escaped and in running home plowed up my mother's flower garden. So after that there were no more tandems or riding of horses that weren't meant to be ridden.

James and I continued friends during all the years of his life; when he went into business for himself and had a cab stand and used to drive my mother and father when they dined out, later when he bought a motor car and reliably took old ladies shopping or to the symphony and young ladies to and from the debutante balls at all hours of the night, and later still, when things didn't go so well and his business melted away and he had to work as best he could, doing odd jobs here and there in garages. He was too much the sportsman to go on relief or to accept charity, and to add to his worries by now he had a wife and a child to support.

James, besides being a friend of mine, also was my first private patient. In 1909, while I was a fourth year medical student, I was called to see him, and I can never forget the pride with which I answered the call. He lived in a boarding house in the South End, a dingy place, unattractive in every way, run by a landlady with a musty smell about her like her lodgings and cross because James was ill.

It was then that he told me of a youthful indiscretion a few years back when he had gonorrhea; and now he had rheumatism, not the amateurish kind which the modern student is likely to see but the good old-fashioned variety, so painful that when I walked into his room James complained that I hurt his knees by making the floor shake. I made the necessary arrangements and stayed with him until the ambulance came to take him to the Massachusetts General Hospital.

He was there for a month. His record is of interest, for James was feverish for three weeks, with painful, swollen joints; first the knees, later the elbows and wrists. He had leukocytosis with a count which fell gradually from 20,000 to 8,000. While he was febrile his urine contained a little albumin and a few hyaline casts, but later all signs of renal irritation disappeared. He had two positive blood cultures from which grew a diplostreptococcus without a capsule, which was slightly biscuit shaped and appeared to have the morphologic and cultural characteristics of the *Diplococcus rheumaticus* described by Poynton and Paine.¹

At that particular time, medical Boston was much interested in the work of these investigators. Poynton and Paine thought they had found an important cause of rheumatism, a diplococcus which grew in liquid mediums in streptococcus chains. In three cases they had

From the Robert Dawson Evans Memorial for Clinical Research and Preventive Medicine, Massachusetts Memorial Hospitals.

1. Poynton, F. J., and Paine, A.: The Etiology of Rheumatic Fever, *Lancet* 2: 861-863 (Sept. 22) and 932-935 (Sept. 29) 1900.

isolated the organism from the blood of patients during life, but these patients, in addition to rheumatism, were suffering from acute pericarditis. They said "We cannot claim that the diplococcus is the only cause of rheumatic fever.

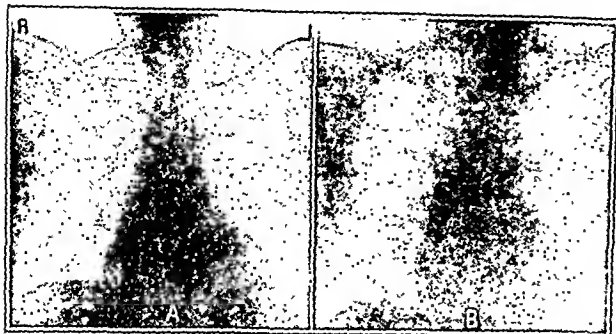


Fig. 1.—Appearance of James's heart in 1937 (A) and 1939 (B): The size of the cardiac silhouette is nearly identical. Why did the heart enlarge to such an extent before 1937 and not appreciably thereafter?

That it is one cause, we believe to be proved to all practical purposes." Thus the finding of this alleged organism in two blood cultures from James appeared significant, particularly because he seemed to have neither endocarditis nor pericarditis nor any other form of rheumatic heart disease. His heart was not enlarged, nothing abnormal was heard in it beyond a faint systolic murmur, and he had no cardiac symptoms. He grew better gradually, and when it became appropriate he was discharged from the hospital with the diagnosis of infectious polyarthritides.

He got along well for the next several years, prosperously, happily and healthfully. I felt embarrassed whenever I met him, for he would give me a fine reputation and volubly tell his friends that his good health was in the main attributable to my adroitness in getting him into the best hospital in Boston quickly when he was like to die of rheumatism.

In 1918 he had an attack of influenza. How serious this was is not certain, for it was during the World War and I did not see him, but at least he claimed it was as near the death of him as could be. In 1919 he married, and in the course of time his wife had a baby who died and another who lived. It was shortly after this that all the breaks seemed to turn against him. The private livery business began to fade away and he found the financial load of raising a family a heavy one. The death of his child bothered him. He had an attack of cholecystitis and had to have an operation, and this left him with a hernia. Business went from bad to worse; he became a chronic worrier, a

disgruntled, unhappy pessimist, and he lost his Irish cheerfulness. Finally he began to get short of breath. In the spring of 1936 he said that he had been coughing all winter; now he was broken winded like old Phyllis, and his feet were swelling. He was glad to enter the Peter Bent Brigham Hospital for repairs.

In 1909, at the Massachusetts General Hospital, the left border of cardiac dulness was 11 cm. from the midsternal line and James's heart did not seem enlarged. Now the cardiac dulness seemed no greater and there were no murmurs. But the blood pressure was elevated to 200 systolic, 100 diastolic, and he was in bad congestive failure with fluid at both lung bases and peripheral edema.

He had an ominous-looking electrocardiographic tracing and a positive Wassermann test and Hinton test, but the urine, the renal function and the spinal fluid were normal and he responded well to treatment. Under rest in bed, digitalis and diuretics he lost 6 Kg. in weight in thirteen days and left the hospital much improved.

After his first break in cardiac compensation he got along fairly well for more than a year, taking life as easily as he could, avoiding hard physical labor, and constantly humiliated by being unable to support his family as he would like. In August 1937 he had to return to the hospital with uncomfortable shortness of breath and swollen ankles. The heart now appeared larger, though no murmurs were audible. The electrocardiographic tracing was as abnormal as ever, the blood pressure was high, the urine was normal and the renal function was not depressed. The blood serologic reaction was positive, though the spinal fluid again was nor-

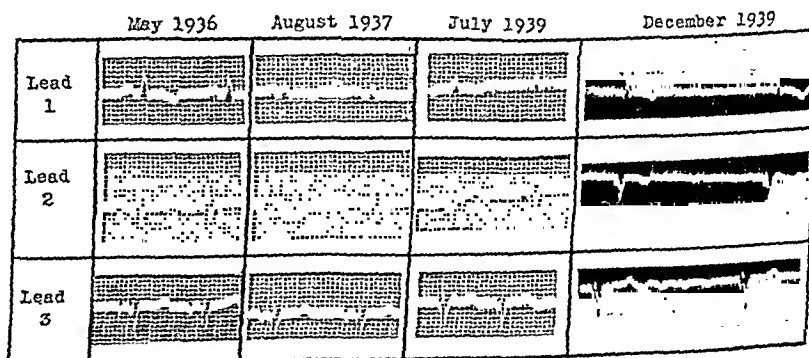


Fig. 2.—Tracings from May 1936 to December 1939: In 1936 and 1937 there were occasional extrasystoles of both auricular and ventricular origin (not shown). The electromotive force of the heart was low. T₁ was inverted. Auricular fibrillation was first recognized in 1939. The appearance of the ventricular complexes remained essentially unchanged.

mal. Once more James responded well to treatment; during three weeks of rest he lost 8 Kg. in weight, and he finally left the hospital much improved.

The second break in compensation could not have been as incapacitating as the first, for

after it James had two years of comparative comfort; and in 1939, when he made his third trip to the Brigham Hospital, he said he came there not so uncomfortable as he had been previously but because he was on the way to

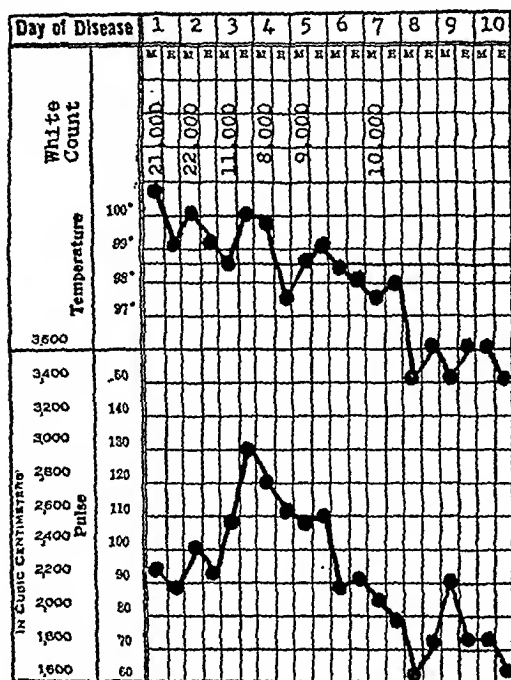


Fig. 3.—Temperature and pulse: Acute appendicitis occurred as a terminal complication of long standing congestive heart failure.

getting badly ill and experience had taught him the sense of entering a hospital early so that his stay there could be short. He had the same old complaint of increasing shortness of breath, now complicated by a sense of sternal oppression when he exerted himself.

The heart was very large, with the left border of dulness apparently 3 cm. farther from the midsternal line than it had been two years previously; the blood pressure was a trifle lower, having fallen to around 160 systolic, 100 diastolic; a moderately loud systolic murmur was audible over the precordium. The urine and renal function were normal; the Wassermann reaction had become doubtful, though the Hinton test was as definite as ever.

Two new features now were noticed. The auricles were fibrillating, but otherwise the tracing was much as it had been. During his stay a transitory attack of jaundice developed with the appearance of bile in the urine and an elevated icteric index, unassociated with cough or chest pain. This episode suggested that he might have had a small pulmonary embolus, though of this there was no definite proof. On the whole, he appeared to get along well enough and left the hospital after two weeks. Digitalis, good nursing and diuretics reduced his weight by 12 Kg. He was discharged edema free and, so far as could be told, in fairly good condition.

It soon became evident that something had occurred to make James's heart less efficient now than ever it had been before, because within a few weeks time cardiac decompensation recurred. James grew so short of breath that he was uncomfortable even at rest and, no matter how quiet he remained, edema tended to redevelop. He noticed another disturbing symptom. He suddenly began to have polydipsia and polyuria. His doctor told him that he had sugar, that he must take insulin and that he needed hospitalization.

The Brigham Hospital happened to be full at the moment but my colleague Dr. Chester Keefer was kind enough to admit James to the Evans Memorial. It was the same old story: congestive failure from a huge heart without significant murmurs and in auricular fibrillation, able to improve under bed rest, good nursing, digitalis and diuretics. On this occasion perhaps there was more evidence than previously of renal damage. The initial specimen of urine contained more albumin than heretofore, the blood nonprotein nitrogen was 45 mg. per hundred cubic centimeters, and the urinary sediment contained more casts. As the congestion cleared up, however, the albuminuria disappeared, the nonprotein nitrogen reverted toward normal and the casts disappeared, so that it seemed as if most of the renal damage was due to passive congestion rather than to any significant renal disease. The urine was found not to contain sugar, and several fasting blood sugar determinations revealed a concentration of between 120 and 140 mg. per hundred



Fig. 4.—Section through the right ventricular wall showing relatively normal coronary arteries and the diffuse nature of the myocardial fibrosis; slightly reduced from a photomicrograph with a magnification of about 25 diameters.

cubic centimeters, so that whatever diabetic tendency James had appeared to be ephemeral. The Wassermann reaction was negative, though the Hinton test was as positive as ever.

James still had a heart remarkable in its ability to recuperate from all insults. It was

notably enlarged; and while it previously produced a bad looking tracing with regular rhythm, now it continued to produce an equally bad looking tracing with fibrillation.

Yet in 1936, when compensation first broke, the circulation time was thirty-three seconds, the best vital capacity determination was 2,150 cc., and the venous pressure was 130 mm. of water. Now the circulation time was from thirty-three to forty seconds, the best vital capacity was 2,840 cc., and the venous pressure fell from 160 to 105 mm. of water under treatment. There was but little measurable evidence that his heart had grown much worse.

James's weight curve is of interest as an indicator of what his disease was doing to his general condition.

There had occurred a progressive loss in weight when he was free of edema and this, I believe, has always a significant meaning. Apparently, James was going downhill steadily in spite of whatever could be done in the way of treatment: he was drying up and withering like the leaves in the fall.

He stayed in the Evans Memorial for three weeks. He had been at home after this hospital entry for not more than a few days, when suddenly one night there developed an agonizing lower abdominal pain, unaccompanied by nausea or vomiting but preceded by slight diarrhea. He returned to the Massachusetts Memorial Hospital at once. He had slight fever, leukocytosis and localized lower abdominal tenderness. Some observers thought that there was a tender mass to be felt in the right lower quadrant. His general condition was so poor as to make any surgical procedure unwarrantable. At first he seemed to get the best of his troubles, but later his temperature became subnormal and he sank rapidly.

Those who saw him felt that he had either acute appendicitis or thrombosis of a mesenteric vessel. To me it is a queer twist of fate that made my father's old coachman, my first patient and a man whose case I had followed for thirty years, die at the age of 62 as the result of acute appendicitis, a disease that had always so much interested his former employer.

NECROPSY

The necropsy was performed by Dr. Charles F. Branch, of Boston University, who furnished a detailed account of his various observations:

In the region of the appendix at the lower end of the right lateral gutter, just at the pelvis brim, were several coils of small intestine firmly matted together by partially organized fibrinous adhesions. These formed the roof of a well localized pelvic abscess which contained approximately 50 cc. of thick creamy foul-smelling purulent material. The appendix was found lying in the upper lateral wall of this abscess cavity. It was approximately 6 cm. in length, its proximal four fifths averaged 6 mm. in diameter, while its tip was distended to approximately 1 cm. in diam-

eter. The tip was represented by a grayish green slough, from which there was a perforation into the abscess cavity. The proximal portion of the appendix showed relatively little gross pathologic change.

Microscopic examination of the appendix showed its lumen to be filled with neutrophils and the mucosa to be intact except in the region of the tip, at which point the entire appendix was represented by a sloughed gangrenous mass of tissue. The vessels of the serosa were engorged, but the smaller arterioles showed no specific pathologic alteration or occlusion.

The heart weighed 640 Gm. It was firm and contracted. The myocardium was hypertrophied and non-friable. The right ventricle was especially large, measuring 1 cm. in thickness. There were a few small scattered areas of fibrosis to be seen throughout the muscle, none of which measured more than 5 mm. in diameter.

The right auricle was dilated, measuring approximately 10 cm. in diameter when fully distended. The right auricular appendage was occluded by an oval thrombotic mass which was firmly attached at the auricular tip. The left auricular appendage also was occluded by a similar though slightly larger mass; this was much softer and more friable and showed extensive central liquefaction.

There was no endocarditis. The tricuspid and pulmonary valves were normal except for a slight increase in their measurements. The base of the mitral and aortic cusps showed an advanced degree of arteriosclerosis. The mitral commissure showed a semilunar sclerotic plaque approximately 3 cm. in width and 1.5 cm. in depth which was in immediate apposition to the aortic base. The commissures of the aortic cusps were firmly fused for a distance of from 5 to 7 mm. and showed considerable calcification.

Hospital Weight Measurements in the Case of James

Date	Weight at Entry (Kg.)	Weight at Discharge (Kg.)
May 1936.....	88.4	82.4
August 1937.....	88.8	81.0
July 1939.....	86.5	74.6
November 1939...	79.5+	71.8

The coronary arteries were patent but showed numerous points of narrowing due to calcified atheromatous plaques. There were extensive stretches of coronary vessel, however, which showed no gross intimal damage.

Microscopic examination through various portions of the heart, including sections from the right and left ventricles, the interventricular septum and the auricles, all showed a peculiar fibrosis, much more noticeable microscopically than to gross examination. In general, the muscle bundles stained normally, showed their cross striations beneath the endocardium and only in rare instances beneath the endocardium presented any evidence of hydropic degeneration. The increase of connective tissue throughout the myocardium presented surprisingly little pathologic change indicative of any specific cause other than that customarily associated with simple coronary occlusion. No Aschoff bodies were observed in the several sections examined. An occasional area of diffuse infiltration with small numbers of lymphocytes was the most prominent feature observed, and this was more marked beneath the pericardium than elsewhere. Here the clumps of lymphocytes tended to be arranged around blood vessels.

The arterioles throughout the heart showed varying degrees of atheromatous degeneration; however, no occlusive lesions could be demonstrated.

The aorta showed advanced atheromatous degeneration throughout its entire course, with extensive plaques of calcification in the abdominal portion.

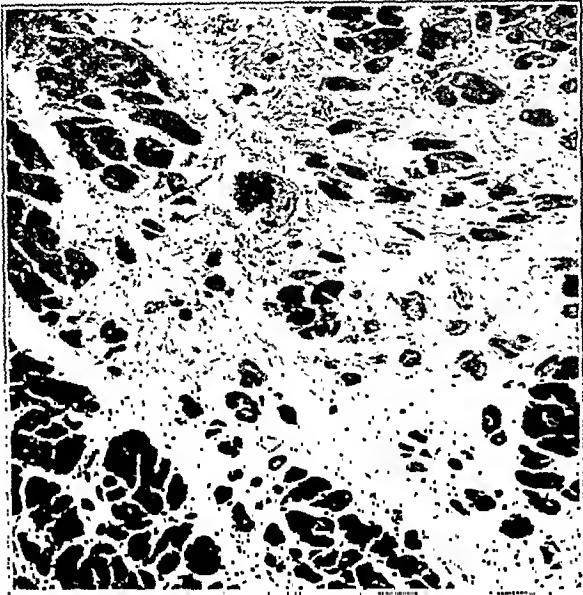


Fig. 5.—Section through the interventricular septum showing in greater detail the diffuse fibrosis; reduced from a photomicrograph with a magnification of about 250 diameters.

Many of these formed shalike excrescences protruding into the lumen. About the margins of such lesions were typical old atheromatous ulcers. Throughout the thoracic portion of the aorta were several areas of white fibrous thickening of the intima, accompanied by many closely set linear puckeringings presenting the characteristic "tree bark" appearance of syphilitic aortitis.

Microscopic examination of the thoracic aorta showed a marked fibrous and hyaline thickening of the intima beneath which were extensive deposits of atheromatous debris, cholesterol crystals and fat laden macrophages. The internal elastic membrane was badly distorted and ruptured at several points. The media showed numerous areas of scarring and many areas of perivascular fibrosis infiltrated with plasma cells and lymphocytes. The vessels of the adventitia showed simular perivascular infiltration.

The heart obviously was badly damaged by a diffuse and fairly uniform fibrosis which was not at all characteristic of healed rheumatic fever or of a possible gonococic infection or altogether characteristic of simple arteriosclerosis. The degree of coronary sclerosis did not appear commensurate with the diffuse myocardial fibrosis at hand. The picture in the upper aorta was compatible with the diagnosis of syphilis. Dr. Branch suspects that the myocarditis was of syphilitic origin, though he is not certain. He raises another interesting suggestion: Could the diffuse myocardial fibrosis be the end result of successive bouts of interstitial edema and be due fundamentally to lack of vitamin B—an atypical beriberi heart?

The lungs were noteworthy in that the larger arteries throughout each lobe showed large numbers of soft raised atheromatous plaques which partially occluded many vessels. The degree of gross pulmonary arteriosclerosis was considerably more marked than is usual in an individual of the patient's age. No evidence of pulmonary embolism was discoverable.

On microscopic examination the bronchi were well preserved, although the musculature of the larger bronchioles was distinctly thin and atrophic. Occasional peribronchial arterioles showed edema of their walls and definite infiltration with lymphocytes and endothelial cells. The larger arterioles tended to show an edematous, myxomatous appearance of their media and adventitia, with numerous patches of atheromatous degeneration of their intima. No completely occlusive lesions were found, although many of the smaller arterioles were distinctly narrowed. In general the alveoli were either emphysematous or atelectatic, with definite diminution of elastic tissue in the interalveolar walls and containing varying numbers of hemosiderin laden macrophages. There was nothing in the picture suggestive of Ayerza's disease, nor were there any microscopic lesions compatible with the degree of arteriosclerosis noted grossly. On the whole, the histologic picture was that of long standing chronic passive congestion.

The kidneys weighed 430 Gm. On section, the normal relationship between the pyramids and the cortex was well defined, the latter measuring 8 mm. in width. The capsule stripped with some difficulty, leaving a finely granular, deeply pitted, bright reddish brown surface on which the capillary network stood out sharply. There was a moderate amount of pelvic fat. The pelvic epithelium and ureters were normal. The renal arteries showed a marked degree of arteriosclerosis throughout their entire length. There was no gross evidence of frank obstruction due to kinking or atheromatous plaques.

Sections through various portions showed certain subcapsular areas in which the glomeruli were sclerosed and the tubules were atrophic or absent and where the relative increase of connective tissue was infiltrated with small numbers of lymphocytes. In general, however, the glomeruli were in remarkably good condition, and their afferent and efferent arterioles stood out sharply as normal appearing vascular entities. The tubules were relatively normal in appearance, the epithelium being intact and the lumens containing but a small amount of amorphous coagulum. The capillaries were markedly engorged. Pathologically, the kidneys showed no marked degree of vascular nephritis; it is not remarkable that the renal function remained so normal.

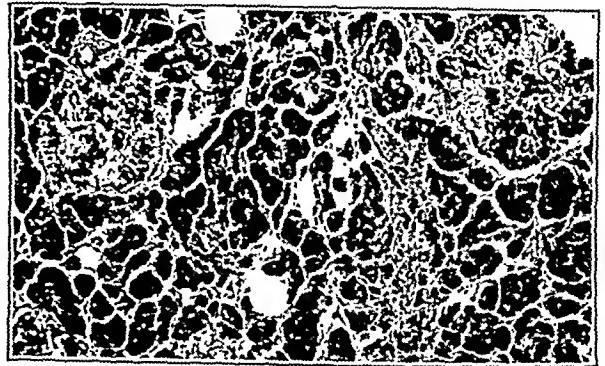


Fig. 6.—Section of pancreas: There is considerable fibrosis and hyalinization of the islands of Langerhans; reduced from a photomicrograph with a magnification of about 250 diameters.

The pancreas weighed 80 Gm. Grossly it appeared normal. Histologically the appearance was that of diabetes. There was a moderate general increase of connective tissue throughout, with moderate numbers of increased fatty trabeculae. In many places the connective tissue was infiltrated with small numbers of lymphocytes and plasma cells. The majority of the islands of Langerhans showed some degree of hyalini-

zation varying from partial replacement of one or two cords to almost complete fibrosis of the entire unit. The arterioles everywhere showed a marked fibrous and hyaline thickening of their intima, in places amounting to complete occlusion.

The ductular epithelium at occasional points showed definite evidence of metaplasia. This, Dr. Branch believes, was probably due to vitamin C deficiency.

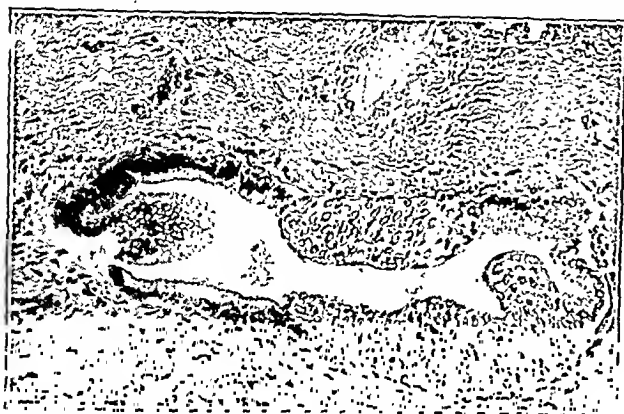


Fig. 7.—One of the pancreatic ducts showing epithelial metaplasia; reduced from a photomicrograph with a magnification of about 100 diameters.

The other organs showed no significant changes beyond such as were compatible with long standing chronic passive congestion.

COMMENT

I have reported the case of James at length because it is interesting from many points of view. Here was a man who, during thirty years of adult living, went through a variety of vicissitudes almost entirely under the eye of one doctor: gonorrhea and unrecognized syphilis; an attack of rheumatism with positive blood culture; a period of strenuous living, including hard work and a great deal of exposure to bad weather and long hours; an attack of influenza; a major surgical operation; a period of unhappiness and worry; dire poverty; a prolonged sense of frustration because his later years were so different from what he hoped they might be. From all this chain of circumstances there developed hypertension, a badly diseased heart without clinical evidence of valvular disease, probably diabetes, surely syphilitic aortitis and much generalized arteriosclerosis.

One might argue that the necropsy in the case of James was useless, that the prognosis was plain at the time of his first decompensation, that it made no difference whether, at the end, he had mesenteric thrombosis or appendicitis, because there was nothing to do about either, and that the diagnosis was evident long before his death, clearly labeling him as being nothing more than just another cardiorenal-vascular patient.

On the other hand, cardiorenal-vascular disease is today one of the most important pathologic entities, about which very little is known. What made James have vascular disease at all? How did he escape rheumatic heart disease?

How much of a part which might have been prevented did syphilis play in the illness? Why did high blood pressure develop? Why did he not have angina pectoris? Why did he escape renal insufficiency? Why did he have so striking a degree of right ventricular hypertrophy? Why did his heart hypertrophy so greatly? What made a positive Wassermann test become doubtfully positive and finally negative without any treatment? What part did other infections than syphilis play in the breakdown of his health—or hard work, or exposure to all kinds of weather, or unhappiness, or avitaminosis from faulty diet due to poverty? Why did auricular fibrillation develop and how did this affect the function of his heart? With marked pancreatic lesions supposedly characteristic of diabetes, why did not clearcut signs and symptoms of this disease develop? Why did he have appendicitis? All these questions, and many others, come to mind when the case of James is studied in its entirety.

My own idea is that such questions can never be answered satisfactorily until the life cycle of a large group of individuals like James is studied. A great many cases like that of James must be followed medically during the entire lifetime, must be examined at the end by a pathologist and must be reported in readable fashion. In due course of time, by such means, information can be assembled which may be of great importance. At present great emphasis in clinical investigation is likely to be placed

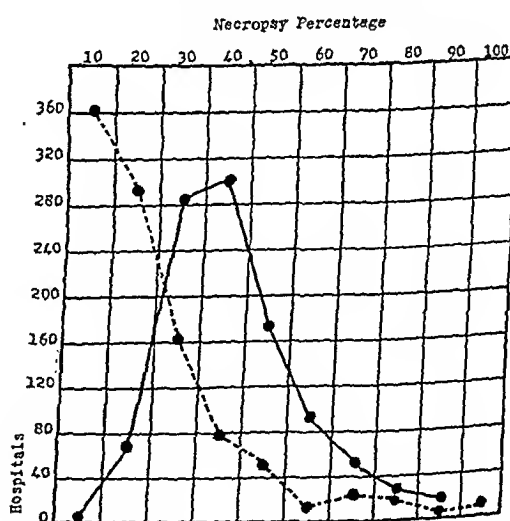


Fig. 8.—A comparison in necropsy percentage: The dotted curve represents the necropsy percentage in 556 hospitals approved for intern training in 1926 (*THE JOURNAL*, March 30, 1929, p. 1056). The solid curve represents the necropsy percentage in 729 hospitals approved for intern training in 1939 (*Ibid.*, Aug. 26, 1939, p. 832). To make the figures comparable, each curve has been plotted on the basis of a thousand hospitals.

on short term physiologic or chemical research and but little on the more time consuming, more elusive study of man as a whole. This is only natural because a young man at the commencement of his career wishes immediate results

with immediate publication and is unlikely to be patient at starting on a problem which he knows can never be finished during his lifetime. Hospitals, however, can do more than they now are doing to help in the accumulation of carefully documented experience regarding the life history of human disease observed over a long period of time.

A chart constructed from data published from time to time in the educational or hospital numbers of *THE JOURNAL* yields significant information.

Even in the hospitals approved for intern training there still is evident too much inertia regarding careful clinical and pathologic correlation. While notable progress has been made in the last thirteen years, owing largely to the efforts of the Council on Medical Education and Hospitals, the percentage of necropsies to deaths in many hospitals should be higher than it is at present. That a necropsy percentage of over 70 is possible was demonstrated last year in twenty-seven institutions, and that a remarkable general renaissance is being stimulated in the

attitude of hospitals toward the importance of pathology to clinical medicine is very apparent. Those hospitals with the best records in clinical-pathologic correlation are mainly government hospitals or teaching hospitals intimately connected with medical schools. All hospitals which train interns are teaching hospitals. Each staff member of any of these hospitals must constantly remember that he is a teacher and remind himself, in his capacity as preceptor, that his interns will imitate him for the rest of their days. He must teach them in diagnosis and treatment that the complete understanding of the individual patient is of paramount importance.

The ultimate duty of a decent doctor to his patient is to bring to light discrepancies between clinical and pathologic data. It is by this method that mistakes are discovered and that important advances in the knowledge of man and his reactions to disease and environment are still to be made.

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Personal Problems and Attitudes of Medical Students

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A widespread interest in this work was indicated by the responses received from the first surveys published in the Student Section of *THE JOURNAL*, Nov. 25, 1939, and the results of last year's clinics. Sixteen leading medical schools and several other educational institutions in different states have asked for additional information. Some have expressed a desire to cooperate further. Many practicing physicians have responded favorably.

The 1940 Medical Students Problems Clinics were characterized by the extension of the personal problems survey to include a larger number of students, the widening of the scope of the clinics to include many hitherto unsolved social and personal problems of students, and a growing interest on the part of faculty and students.

ORIGIN OF THE CLINICS

The present clinics are an outgrowth of a project instituted three years ago by the Inter-Medical Schools Student Council of the West Side Medical Center in Chicago, following addresses by Dr. Harry A. Overstreet, head of the Department of Psychology and Philosophy

of the College of the City of New York; Dr. Morris Fishbein, Editor of *THE JOURNAL*; Dr. David J. Davis, dean of the University of Illinois College of Medicine; Dr. T. T. Job, Loyola University School of Medicine; Dr. F. L. Lederer, University of Illinois College of Medicine; Dr. G. E. Wakerlin, University of Illinois College of Medicine; Dr. G. B. Hassin, University of Illinois College of Medicine; Dr. Arthur H. Compton, scientist, University of Chicago, and other outstanding leaders in the field of education and medical practice. Interest in personal problems of students began to crystallize. After many consultations with teachers and practitioners, Dr. H. M. Sheaff, and A. E. Diggs, University of Illinois College, Drs. William H. Welker and Bernard Fantus of the University of Illinois College of Medicine, Dr. Noyes, dean, University of Illinois Dental College, and Dr. McNulty, Chicago College of Dental Surgery, and others, the first clinics were developed. Each clinic has been under the leadership of a commission consisting of several students and one or more faculty members.

In 1940 more than 3,500 students who were enrolled in the different schools located in the Chicago area participated in the study.

This year's Medical Students Personal Problems Clinics were developed around the basic areas of student concern emerging from the experience of the past three years. The resolu-

Much credit is due to the administrations of the schools who gave permission for the studies in their institutions. Also, cooperation was shown by the many faculty members, who gave consent for students conducting the survey to appear before classes. Distribution of the questionnaire to so many people would have been impossible if it had not been for the help and teamwork of a large number of interested students who helped in the drafting of the questions. Many gave freely of their time and efforts in the circulating and collecting of returns.

tion on medical education adopted in Kansas City at the eighty-seventh annual session of the American Medical Association continued to serve as a guiding influence.

The specific problems were determined by a questionnaire and through an exhaustive analysis of student situations and personal problems. Other general problems were drawn out of the common interest and daily activities of students now engaged in attending medical schools.

Underlying the entire procedure was recognition of the requirement that the student shall be thoroughly prepared to take his place in society both as a citizen and as a skilled practitioner and community leader with the understanding and ability necessary to meet the basic problems. In brief, the fundamental problems of satisfactory living were the goals sought in the clinics.

METHODS OF PROCEDURE

Since the field covered by this project had never been surveyed by a similar type group, it was necessary to develop most careful methods of procedure. All information received was carefully tabulated and every step checked. When the information was finally compiled it enabled the investigators to compare the latest results with the earlier observations.

From the beginning the leaders were agreed that the project should be shorn of undesirable approaches and that the methods of the clinics must be to employ the techniques of the modern laboratory in an exacting examination of the personal and social problems confronting the medical student. On the assumption that individual development takes place best when efforts are directed by clear purposes and reliable information, the program was presented around those important problems determined by analysis of situations which confront every student and faculty member in the medical school.

Medical students live a strenuous life in a constantly changing world. No one is spared the struggle to make adjustments to new conditions. Disastrous social conflicts are to be found among those who cannot adjust themselves to new conditions.

Unsatisfactory living on the part of the individual is a direct result of inability to harmonize with one's environment. The task of training for the medical profession is inseparably related to the broader field of adult education and includes community activities and other social pursuits. It is an indispensable factor in advancing social and professional standards that the future medical man acquire these broader skills in conjunction with the technical professional training.

THE QUESTIONNAIRE

To secure a proper setting for the discussions of the clinics and to provide a source of valid

information, the following questionnaire was devised and used by the students:

Please Do Not Sign Your Name! Your help is requested in gathering information regarding what medical students do and think. The answers to the questions, when compiled, will provide a substantial basis for the discussions of the Medical Students' Problems Clinics. Please be honest. In no way will there be any attempt made to identify you with your answers.

Q.—Sex? Q.—Age? A.—Average 26. Q.—Married? Single? Divorced? School? Year? Religion? Race?

1. Q.—Do you feel that you personally are in need of more cultural training and background to equip you for the practice of your profession? A.—Yes 63%, no 37%.

2. Q.—Do you use alcohol? A.—Moderately 70%, not at all 20%, excessively 10%.

3. Q.—Which of the following have you attended more than three times during the school year? A.—Opera 3%, plays 6%, movies 25%, church 10%, concerts 9%, athletic activities 12%, read non-technical books 12%, night clubs 9%, taverns 9%, burlesque shows 1%, gambling "jolts" 2%, lectures (not required) 4%. Q.—How do you prefer to attend these? A.—Alone 14%, with your own sex 30%, with the opposite sex 56%.

5. Q.—Do you have a college degree? A.—Yes 65%, no 35%.

6. Q.—Do you intend to specialize in a branch of your profession which requires further study after you have completed your present course? A.—Yes 53%, no 47%.

7. Q.—Roughly what percentage of your courses do you consider time wasted? A.—25%.

8. Q.—Does the curriculum leave you enough time for social interaction and enough leisure to pursue other interests? A.—Yes 59%, no 41%.

9. Q.—Roughly what percentage of your instructors do you consider good teachers? A.—50%.

10. Q.—Do you depend on religion for personal satisfaction? A.—Yes 37%, no 63%.

11. Q.—How do you attend church or religious meetings? A.—Regularly 7%, occasionally 10%, never 83%. Q.—If you do not attend regularly, why? A.—Work 10%, sleep 75%, indifference 15%, fear of ridicule 0%.

12. Q.—Since entering professional training, how has your regard changed toward the church? A.—Greater belief 30%, less belief 70%.

13. Q.—Regardless of financial status of the student at what time during his training is marriage advisable? A.—First two years 18%, last two years 25%, Internship 27%, "starvation period" 30%.

14. Q.—Compared with your intellectual level, what sort of person would you prefer to marry? A.—Below 0%, even with 74%, above 26%.

15. Q.—Do you approve of women physicians? A.—Yes 27%, no 73%. Q.—If any of your family were ill, would you call a woman physician? A.—Yes 38%, no 62%.

16. Q.—Do you approve of girls sharing expenses on dates? A.—Yes 76%, no 24%.

17. Q.—In a word, what do you regard as the most undesirable characteristic in students of your school? A.—First selfishness, second egotism, third rudeness, fourth cheating.

18. Q.—Have you ever had a venereal disease? A.—Yes 3%, no 97%. Q.—Indulged in sexual intercourse before marriage? A.—Yes 60%, no 40%. Q.—Indulged in sexual intercourse when engaged? A.—Yes 72%, no 28%.

19. Q.—Do you use contraceptives personally? A.—Yes 85%, no 15%. Q.—Do you favor their use by the lay public? A.—Yes 89%, no 11%. Q.—Do you think the doctor should be trained to give this information? A.—Yes 97%, no 3%.

20. Q.—Where do you plan to practice? A.—In a large city 79%, small community 21%.

21. Q.—How is your physical condition and health as compared to how it was when you entered the professional school? A.—Same 65%, worse 35%.

22. Q.—Have your moral attitudes changed since being in training? A.—More critical 27%, more lax 73%.

23. Q.—Do you understand the Wagner bill? A.—Yes 46%, no 54%.

24. Q.—If the United States declared war for any reason would you volunteer for military service? A.—Yes 25%, no 75%.

25. Q.—Are the students in dentistry, medicine, pharmacy and nursing professions more careless than the average in dress? A.—Yes 57%, no 43%.

26. Q.—Is a professional student justified in accepting financial support from his wife? A.—Yes 72%, no 28%.

27. Q.—Do you feel that your profession has hardened you to human need? A.—Yes 36%, no 64%.

28. Q.—Do you favor some college training for admission to nursing school? A.—Yes 100%. Q.—If so, how many years? A.—Average two years. Q.—To medical school? A.—Average three years. Q.—To dental school? A.—Two years. Q.—To pharmacy school? A.—Two years.

29. Q.—During your professional training how has your belief in a personal god become? A.—More important 32%, less important 68%.

30. Q.—Do you consider your professional school colleagues adequately schooled in etiquette? A.—Yes 40%, no 60%.

31. Q.—Do you feel that your professional training tends to make you humble? A.—Yes 30%, no 70%.

32. Q.—Are you influenced by propaganda? A.—Yes 51%, no 49%.

33. Q.—Do you believe in regimentation of your profession? A.—Yes 3%, no 97%.

34. Q.—Do you favor your school establishing certain standards for living conditions? A.—Yes 52%, no 48%.

The results of this clinical analysis show trends of thought and points of view growing out of a sincere attempt by students to face their personal problems.

COMMENT ON QUESTIONS

Questions 1, 3, 25 and 30: Investigation of these questions reveals that many cultural interests are suffering from anemia among medical students. Many an eminent educator, scientist and medical leader, brought to the field by the various schools, addresses a distressingly small audience. Recitals and concerts in the neighborhood institutions are usually attended by a small number. Neighborhood movies featuring love thrillers boast the best attendance of any institution in the whole area. In the field of current reading it is interesting to note that students buy fifty copies of *Esquire*, *True Romance* and *Detective Stories* to one copy of the *Atlantic* or *Harper's*. The only places where students go *en masse* are to required class lectures, clinical demonstrations, the movies and dances. As a matter of fact, the average medical student is not concerned with the cultural aspects of the usual uplift program planned for him. And naturally so! The medical school is a world of physical facts, clinics, dissecting rooms, microscopes, test tubes, case histories, examinations and books.

Question 8: This question seemed to include more than the curriculum—the whole scope of the daily activities seemed to be involved. Careful examination of student life inevitably takes one outside the walls of the institution responsible for the formal technical training program. Here we find that certain aspects of our twentieth century civilization draw students away from that phase of life usually called intellectual and religious. The speed of life, with radios, newspapers, crowded schedules, restlessness, fast moving crowds hurrying to go no place, all tend to induce hastiness in mental activities, which in turn breeds superficiality. With little chance to concentrate on any single field of thought, students tend to jump from one interest to another.

Question 11: Religion, as a subject for serious intellectual concern, is not popular among the great majority. It is rarely a subject for serious study and the students are conspicuously absent from services of worship conducted by churches within the community. Attendance at church services both regularly and occasionally is participated in by only 17 per cent. A breakdown of the 17 per cent attendance figure opens the way to many interesting speculations concerning the carry over results of early childhood training methods practiced by the various faiths and denominations. Of those reported as regular or occasional church attendants the nonmember of any church group ranked first with 7 per cent. Strange as this appears, on careful study it

seems to substantiate the often repeated statement of students that early church going experiences, when reviewed during their professional training period, appear unattractive and unsatisfying for the scientifically trained mind. Of the remaining group, Lutherans come second with 5 per cent, Catholic students were third with 3 per cent, Baptist and Jewish come fourth and Methodists last. A fact of tremendous importance growing out of this phase of the study is that the church has not yet found a way to attract and to hold the large body of highly trained young men and women who will become our influential professional leaders of tomorrow. Can the church build a program that will grip the interest and command the loyalties of these youth?

Questions 10 and 12: One of the most interesting facts revealed by the study of these questions is that the students of all different faiths are proportionately indifferent to the church. There seems to be no doubt about it. The church for most of the students is simply not counted. It is true that some talk about it, but much as if it were a dead thing. "Jam sessions" turn to it occasionally, but their talk for the most part lacks genuine interest.

Question 18: It is recognized that there are grave dangers in premarital sexual intercourse. The social attitudes and restrictions at this point are so strong that they may be reflected in the attitudes of the two toward themselves and toward each other, even though intellectually they believe that their action is quite proper. Unintended pregnancy is a further possible source of complication. For some it is well to make a distinction between gratification and satisfaction. By gratification is meant the gaining of temporary pleasurable sensations. By satisfaction is meant the achievement, in addition to gratification, of friendship, love, beauty and all those distinctively human values which make life worth while. Certain types of sex gratifications which relieve tension and give pleasurable sensations at the time do not satisfy the complex, interrelated needs of a civilized man or woman. It is of first importance to discover how to handle sex desires so as not only to gratify but also to satisfy a cultivated person.

Question 21: It is now generally recognized that tuberculosis constitutes the main occupational hazard of the medical student. This danger is probably increased for students who are forced to work their way through the professional school. Rest with proper exercise and adequate recreation are absolute essentials in the life of students. The administrations of the schools are increasingly developing greater means of safeguarding the health of the student.

Question 22: This attempt to look facts in the face possibly has brought to some the conclusion that it's hopeless, that nothing much

can be accomplished in changing student moral attitudes for the better; medical students will go on being what they are and we cannot improve them. Such conclusions might be justified if we continue to follow the paths of old. Careful study of the customary practices of the past and the accompanying failures to make progress bring to light the fact that most of the basic principles in sound education and the essential conditions for proper cultural development have been grossly ignored. Medical students resent pressure. "Religion is my own business" is the usual reply when an overzealous worker speaks of spiritual matters.

Question 29: The results of an earlier survey were compared with the recent results, and it is significant to note that 98 per cent of the freshmen believe in God while 53 per cent of the seniors indicate disbelief in God. If these statistics indicate what takes place among students in general, it would appear that the concept of God gained by many in early youth cannot stand up under the microscopic test of a scientific training for a profession.

Question 29: It is the sincere belief of those interested in the final results of this study that the only work that promises anything worth while in the developing of personality and influencing character with medical students must be based on the spirit of science at its best, which means the uncommercialized love of truth no matter where it leads, sincere effort and eager curiosity, readiness to discard yesterday's theories in the face of newly acquired information, endless explorations built on an unquestioned belief in life.

CONCLUSION

Leaders in the medical profession more and more are stressing the fact that the task of the physician is the most intimate and delicate in the field of public service. As soon as the student really grasps the significance of this fact he will begin to see that his professional training of necessity must include and strive to develop the social and cultural aspects of human relations.

From the view of the faculty and administrations of the training institutions the selection of prospective students will increasingly be based on more than scholastic standing, as indicated by the following resolution at the Eighty-Seventh annual session of the American Medical Association:

WHEREAS, The relationship between physician and patient embodies many factors that must be considered in the determination of an individual's fitness to be a doctor of medicine; and

WHEREAS, The entrance requirements to the degree of Doctor of Medicine cannot be evaluated on a strictly academic basis; therefore be it

Resolved, That the following factors be considered in the selection of students who are to become doctors: character, personality, social fitness, adaptability and motivations.

Gradually the medical schools are providing new opportunities for progressive enhancement and development of personalities of students to go along with the study of anatomy, physiology, chemistry and surgery. To prove the necessity of correlating those qualities included in the American Medical Association resolution—motivation, adaptability, social fitness, character and personality—with the technical and professional knowledge, place that physician beside the beds of sick human beings, where he must deal as much with human nature as he does with medical and professional technics. Thus it would seem that a prerequisite to graduation from a medical school would be a properly balanced personality.

How can we test the personality of a student to find whether he has the characteristics desirable in a practitioner? How are we to apply tests to determine whether a student is socially fit for the profession? These questions have been discussed in the clinic sessions by students from the various schools. The results of the questionnaire were used as a foundation.

It was agreed that one of the best ways to test each applicant for entrance to a medical school would be to find out what he has been in the past several years. Ask teachers in high school and the undergraduate colleges to keep records of students. Following are some questions that might provide essential information:

Personality.—1. What sort of a mask does he wear?

2. Does he mingle easily with his fellows?

3. Does he have many friends?

4. Has he any traits that make a student unable to get along with his associates?

5. Is he conceited?

6. Is he unclean in personal habits?

7. Is he undependable?

8. Is he excessively stubborn?

9. Is he quarrelsome?

Social Fitness.—1. Is he able to get along with others or is he cantankerous?

2. Is he upright or is he underhanded?

3. Does he have control of his emotions or is he uncontrolled?

Character.—1. Is he honest?

2. Has he ever been found guilty of any dishonesty?

Adaptability.—1. Has he traits which make him effective among his associates?

2. Has he held class positions?

3. Has he shown social snobbishness?

4. Has he been a decided recluse?

5. To what extent has he taken part in social activities?

Recreation.—1. Is he active in sports?

2. Does he take active part in recreations?

3. Does he sit back and observe rather than participate?

Motivations.—1. Was his motive in entering professional schools: (a) Prestige? (b) Ego-centric? (c) Easy way to make money? (d) Sense of human service? (e) Having something grand to do?

2. Has he shown an interest in something other than grades?

3. Does he go out of his way to do things for others?

4. Does he devote time and interest to others than himself?

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Comments and Reviews

A MEDICAL CENTENNIAL OUTLOOK

Condensation of an address by Dr. James Ewing, New York, delivered at the one hundredth anniversary of Albany Medical College, June 12, 1939, and published in Albany Medical Annals, December 1939.

Centennial celebrations of medical schools are rare opportunities when we may review the long past, trace the forces which have directed the fortunes of the institution, acknowledge our debt to the several generations of strong men who have served their alma mater, and renew our allegiance to the traditions which experience has proved to be sound. The present occasion is especially notable because Union University and the Albany Medical School have a distinctive local significance and belong to that group of institutions which are peculiar to our American educational system, the smaller colleges.

Many educators think they detect in the smaller colleges certain advantages and refinements which it is difficult to preserve in the highest degree in the great universities. They seem to consist in the comparative simplicity of college life, the more friendly contacts between students and the more intimate relations with teachers. One must suspect that the smaller college is able to respect established traditions and not to yield so readily to passing popular demand for untried innovations. High scholarship, mental discipline and character building are delicate plants easily crowded out by the influx of more modern and more practical pursuits. The college graduate from the great universities is probably better fitted to make his way in the world, but the man from the small college often seems to have deeper roots and is designed to go further, at least in certain worthy directions. There is every reason to urge that the smaller colleges should maintain their unique position in our educational scheme, for many regard them as the beauty spots of our intellectual world.

CULTURAL VALUE OF MEDICAL STUDY

Medicine is still the mother of the sciences. Contact with the medical sciences has a powerful and a peculiar cultural influence not shared by any other intellectual pursuit. Every university needs a medical school to lend

earnestness and incentive to the pursuit of pure science and higher learning. It is the significant nature of medical knowledge and its intimate relation to human values that lends to the study of medicine its peculiar cultural value. The study of medicine enables a man to follow Agassiz's advice "Know thyself." Without that knowledge it must be questioned whether any man can consider himself really educated. There is an astonishing naiveté regarding the conceptions of the average educated lawyer, clergyman and business man, not to mention the general public, about his bodily sensations and functions, his position in the biologic world, in fact his true significance as an individual, and this ignorance colors his judgments in many of the relations of life. The ancient mysticism about medicine still prevails and the medicine man still circulates freely in polite society. In a medically educated public the medical cults would not thrive. In the medical sciences the penalties visited on the adventurer and false prophet are drastic and destructive, but when medicine becomes mixed with politics the medical politician may survive several false projects merely by repeating them on a larger scale at the expense of the taxpayer, but only because there is no informed body of public opinion. There is a great need of expansion of elementary medical knowledge with the general public and of that culture and balanced judgment which goes with such knowledge, and the pervading influence of the medical department of the universities seems to be the sole source of such help.

FORESIGHT OF THE FOUNDERS

The history of Albany Medical College reveals a unique record of farsighted vision and heroic devotion on the part of its founders. Dr. Alden March came to Albany from Massachusetts in 1820, when the city had 15,000 inhabitants, and started a course in anatomy with fourteen students. In 1825 he was appointed professor of anatomy in the Vermont Academy of Medicine at Castleton, where he remained until 1830, when his Albany class had grown to thirty students. In 1831 Dr. James H. Armsby joined him in Albany and the two physicians worked together to found a medical college. They gave public anatomic demonstrations to a selected

group of laymen and they secured the solid support of influential citizens, who contributed the first funds for the founding of a medical school. This was a very early period in the growth of public medical intelligence for physicians to submit their interests to a group of laymen.

It has often been said that every successful pioneer institution is but the shadow of some man. In this instance that man was Dr. Alden March. In Philadelphia it was Dr. William Shippen. In Boston it was Dr. John Warren and, at Dartmouth, Dr. Nathan Smith.

Another versatile figure, Dr. James H. Armsby, joined with Dr. March in his early efforts and seems to have contributed essentially to their success. Dr. Armsby had a remarkable gift for enlisting the support of the public and in obtaining money for the school. His interests were wide, including no less a project than the founding of a well rounded university in the city of Albany.

FORECASTING THE FUTURE FROM THE PAST

Looking backward, we are privileged to acknowledge the debt which Albany Medical College and the city of Albany owe to these strong men. What does this centennial retrospect teach for the future of medicine?

The great achievement of the past century has been the virtual control of infectious diseases and, as a result, the average expectation of life has been increased about twenty-five years and the age composition of the population correspondingly raised. Recently this line of progress has been greatly forwarded and consolidated by the discovery of chemical agents which seem able to control to a large extent the ravages of the two most formidable bacterial causes of disease, the streptococcus and the pneumococcus. It seems reasonable to expect that these epoch making discoveries in chemotherapy may be extended even further and as a result that medicine in the future will be forced to turn its main attention to the nutritional and degenerative diseases, including especially mental deterioration, cardiorenal disease, cancer and diabetes. Thus medical problems of the future loom quite as large and appear far more complex than those which occupied physicians a hundred years ago.

A MENACE TO MEDICINE

Political and economic problems face the medicine of the future as never before in its history. Political and economic changes have radically altered the complexion of German medicine, which is not likely to regain the zenith reached about the beginning of this century. Somewhat similar limitations are beginning to appear in other European countries, and it is not safe to assume that America is immune to such forces. With us the danger lies in the lack

of understanding between the public and the medical profession. The public does not and apparently can not understand the implications of disease, the vast scope and variety of bodily disorder, and the limitations of curative medicine. I believe that the lack of mutual understanding between the public and the medical profession is greater today than it was thirty years ago. The causes seem to be traceable to the greater control of curable infectious diseases and many minor disorders, and the greater incidence of the more chronic incurable diseases, for which the individual himself is mainly responsible. An important factor is also found in the decline of public morals and the sense of individual responsibility and self help. When great masses of people receive the dole, it is an easy way to assume that some one can hand out relief from disease in the same lavish manner as the government hands out money. The American public will sometime learn that it is a long way from easy money to freedom from disease. Yet certain medical authorities, some occupying positions of importance, chiefly in institutions, but not very familiar with the conditions of medical practice, not overmindful of the social significance of disease and wholly neglectful of the weakness of human nature, have assumed that by the expenditure of vast sums of money it will be possible to improve greatly the care of the sick poor and largely meet the demands of the public. The great majority of thoughtful physicians regard this project as chimerical and some, myself among them, regard it as a grave menace to the future of American medicine.

The idea that this vast sum administered by men and women who mostly lack a record of practical achievement, but are animated by the naive spirit of the big brother, can be wisely expended in a relatively brief time is unreasonable. The scheme is a utopian project designed for an ideal community. It may be suggested that in an ideal community such need would not exist. Among the many hazards inherent in this scheme, one may refer merely to the fact that the withdrawal of such a vast sum from the taxpayers will seriously aggravate the present decline in the resources of American universities and transfer to a group of relatively inexperienced governmental bureaus virtual control of the most vital and individualistic factor in modern society, the university spirit. It is to be hoped that before the federal government actually embarks on such a comprehensive and irreversible program a trustee should be called of at least ten years, during which the exceedingly complex ramifications of the scheme can be analyzed by competent experts. One need not subsidize genius and one may not buy the cardinal virtues in the market place. What American medicine needs most is to be

let alone, to continue the remarkable progress of the past half century which has made medical service and research in this country equal or superior to that in any other nation, to conserve its material resources which have been poured out lavishly and intelligently by public spirited citizens, and to solve its problems methodically according to the judgment and decisions of its tried and trusted leaders. There are, throughout this country, a great number of highly competent physicians and long established medical organizations which are intimately familiar with medical problems and are dealing with them by methods tested by experience, with notable success and as rapidly as may be. Why should we transfer these multitudinous and highly technical responsibilities to a new group of relatively inexperienced persons who are far removed from the scene of action?

NEED OF EDUCATING THE PUBLIC

To forestall precipitate action by runaway political forces it will become necessary for the medical profession to undertake a systematic program of public education, pointing out the high standard of medical service in this country, the diversion of large masses of people from private hospitals to public institutions owing to artificial economic dislocations, the growing abuse of public hospitals by tired folk and malingerers, the demoralizing influence of free medical care, the necessity of personal responsibility for personal hygiene and the avoidance of disease, the ignorance of the public in seeking medical advice, and the utter futility by any conceivable program of relieving the symptoms of innumerable minor ailments or preventing death from major lethal diseases and, above all, the vast difference between useful and noxious therapeutics. For these are days when every one seems to have his own pet ideas about major problems, and the expert must prove that he is an expert by repeated argument and demonstration. A hundred years ago, Albany doctors by public demonstration convinced the public that organized medicine can still be trusted to direct progress in its own field.

UNRESTRAINED BIOLOGIC FORCES

Finally, political and economic movements now gathering momentum in many parts of the world promise to place on medicine of the future grave problems which it alone seems capable of meeting. The greatly increased tenure of life, the elimination of devastating epidemics, the enormous overproduction of foodstuffs and unrestrained reproductive fertility have made it possible for many more people to live on the earth, and in certain regions these biologic forces have brought about extreme overcrowding of the population. In some countries with national ambitions, these

factors have been exaggerated by bonuses for large families and penalties for celibacy, so that the effect of natural biologic influences have been deliberately intensified by human ingenuity. The result has been that these nations must either burst their boundaries or limit their excess population. They have chosen the former course and have frankly adopted the doctrine that henceforth biologic forces unrestrained by human intelligence shall rule the fate of nations. The inevitable result is war. The stronger must destroy the weaker. Among the lower animals nature has provided a convenient mechanism by which the stronger species devour the weaker, or natural limitations of life or deficiency of food or slight climatic changes often erase overpopulous species. No such limiting agencies apply to the human species. We have the advantage of highly developed intelligence and a rather effective control of our physical environment. The problem of overpopulation, undernourishment and unemployment is worldwide and increasing, and it is a biologic problem not to be met by peace conferences, truces, doles, public works and taxes. Neither can it be met by praying for peace or by denouncing the nations that go to war under existing conditions. It can be met only by accepting the biologic doctrine but directing it through enlightened intelligence. The human race need not submit to the natural forces that breed and destroy the lower animals. In America we have flattered ourselves that we are not suffering from these same conditions, that we are not forcing overpopulation and have not adopted the simple biologic doctrine, but is it not clear that during the recent period of expansion many more people came into existence in this country than can be comfortably supported and that jobs for everybody cannot be artificially created? In our approach to the totalitarian state are we also not attempting to solve a biologic problem by economic measures?

REMEDIAL MEASURES

Medicine is the instrument through which remedial measures conceived in the light of biologic principles can be made effective in relieving the present dilemma of the overpopulated nations. The medicine of the future will surely be called on to use all its resources to meet this problem, if it is to be solved at all. Rather than call a peace congress, a conference of biologists, physicians, churchmen and social economists should be assembled to find ways and means. Already many voices have urged the pressing necessity of establishing safe methods of birth control. Modern eugenics offers the possibility of a vast improvement in the quality of the race, for today a large proportion of living persons are unfit physically and mentally, as a result of hereditary and environmental factors. Since the problem is of national

scope, the federal government could aid in formulating public opinion by establishing a bureau devoted to the express object of improving the quality of the North American race. I venture to think that this task is a more essential function of government than are excursions into the field of curative medicine. The chief responsibility and opportunity probably lie with the university medical schools. As practical steps toward this end the medical schools of the future must stress preventive medicine, the science of nutrition, genetics, practical eugenics, antepartum service, endocrinology and all those

branches of science which tend to place us in command of those irresistible biologic forces which determine the quality of mankind. They must cordially accept the biologic doctrine but realize that biologic forces may be modified and controlled in accordance with the dictates of the enlightened conscience. Cooperation with other departments of the university will be required to prepare public opinion to accept the conclusions and adopt the program suggested by medicine, and in this field sociology, economics and philosophy will find new opportunities and incentive.

Medical College News

Medical schools, hospitals and individuals will confer a favor by sending to these headquarters original contributions, reviews and news items to be considered for publication in the Student Section.

Harvard Students After Fifteen Years

The class of 1925 of Harvard Medical School will hold a reunion in New York City, June 11, during the time of the annual meeting of the American Medical Association. Anticipating this event, Dr. William N. Wishard obtained interesting information from 100 of the 117 living members of the class. Five of the remainder live in foreign countries. The addresses of two are unknown. This class spent, on an average, three years in hospital training before assuming the actual practice of medicine; thirty-five members of the class had four years or more of training in a hospital, eighteen had five years or more and eight members had six years or more. Now at least eighty-eight members are on one or more hospital staffs. Thirty-six members answered the question about their own publications, and they had to their credit an average of 11.3 papers, monographs or books per member. Ninety-three belonged to the local and state societies and American Medical Association, three have been president of their local or state medical societies, fifty-eight are diplomates of the National Board of Medical Examiners, five are in the service of the United States. The members belong on the average to 2.8 scientific societies; two of them belong to ten and one actually to fourteen scientific organizations. Their ability to pay so many dues is explained by the fact that the average income of the members of the class was \$7,000 with a maximum of \$20,000 and a minimum of \$3,000. One member has been appointed ambassador to an important country which is much in the limelight during these troublous days. Five members are unmarried, and fifteen of the ninety-five married members have no children. One hundred and eighty-one children have followed the eighty marriages, an average of 2.6 per couple; forty-three of them have two children, eighteen have three, six have four, and one has five children. None of the class have left the profession, one has become a full professor, nine associate or assistant professors, thirty-five instructors, and one is a hospital superintendent. Thirty-five of the hundred have gone into surgery, twenty-one into internal medicine, fifteen into general practice, nine into obstetrics and gynecology, seven into pediatrics, two are secretaries of state boards of health, and two each have gone into ophthalmology and orthopedics. Forty-five of the hundred members returned to practice in the communities from which they came to medical school.

Scholarships Announced by Michigan Galens

The Galens, an honorary medical society, has contributed a scholarship fund of \$2,000 to be awarded annually to students in the University of Michigan Medical School, at Ann Arbor, the money to come from the Galens news stand in the University Hospital. The total sum will be used to form individual scholarships, not one of which is to exceed \$400. The number and size of the scholarships will be determined by the scholarship committee of the medical school, which will award the grants on the basis of the following qualifications: Recipients must be native-born citizens of the United States, must be juniors or seniors in good standing, must have completed two full years of work in the local medical school and must be enrolled at the time the grant is made. Preference will be given to students whose scholastic work in the opinion of the committee will be improved by financial aid.

Tulane's History of Medicine Society

Thirty-five students at the Tulane University of Louisiana School of Medicine, New Orleans, have been named members in the History of Medicine Society, an honorary organization founded at Tulane in 1933, the purpose of which is to foster scholarship and interest in the history of medicine and to maintain the finer traditions of the humanities in medicine. The officers elected for the coming year are Rudolph Matas Landry '42, president; Lee Roy Murphree '42, vice president; Charles M. Wilson Jr. '42, corresponding secretary; Julian Wiener '42, recording secretary; Walter Jacques Trautman Jr. '43, treasurer, and Dr. B. Bernard Weinstein, faculty adviser.

Georgia Faculty-Student Get-Together

The dean of the University of Georgia School of Medicine, Augusta, Dr. G. Lombard Kelly, proclaimed May 11-18 as Faculty-Student Get-Together Week. An auld lang syne dance was held Saturday evening in the former college auditorium, which faculty members and their wives attended. The regular meeting of the Faculty-Student Council was held Monday evening at the home of Dr. Peter B. Wright. Exercises were held Friday evening in the Dugas Auditorium, following which refreshments were served in the Physiology and Pharmacology Laboratory. The Faculty-Student Council was promulgated during the present year for round table discussions of faculty-student problems. Five members of the faculty were selected by the stu-

dent body to serve with nine students, two selected by each class, and the president of the student body. —The University System of Georgia Council, consisting of the heads, deans and many teachers in the different parts of the system to the number of more than 100, was the guest of the school of medicine April 26-28.

A students' activities fee of \$5, collected for the first time this year, has paid all students' hospital bills to date and has paid for two table tennis sets, two pool tables, and one badminton court and equipment.

Annual Lecture at Louisville

The annual Alpha Omega Alpha lecture at the University of Louisville School of Medicine, Louisville, Ky., was held at the Louisville City Hospital, April 19. Dr. John A. Bigler, assistant professor of pediatrics, Northwestern University Medical School, Chicago, spoke on "The Blood Titer of Diphtheria and Tetanus Antitoxin." Sixty-six guests attended the banquet. Dr. Lee Palmer was toastmaster. The speakers were Dr. Bigler and the two graduate members-elect, Drs. Emmet F. Horine and James H. Pritchett.

Seniors Give Notes for \$200 Each

The senior class of the George Washington University School of Medicine, Washington, D. C., has unanimously presented the school of medicine with a \$10,000 endowment fund, each student in the class having signed a noninterest bearing note for \$200.

Vitamin Patents to Provide Chemistry Fellowships

Lee I. Smith, Ph.D., head of the division of organic chemistry, University of Minnesota, Minneapolis, has donated to the university his 25 per cent share in the proceeds from manufacture and sale of vitamin E products under patents applied for as a result of his research, and the university has accepted the gift. It was specified that if and when the income is sufficient from the patents four \$750 fellowships in chemistry be established to be awarded annually to superior students. If more than that amount of money accrues the remainder shall go to establish the Lee Irvin Smith Fund, the income of which shall be used to pay the fellowships when the patents expire.

An Opportunity to Sing in New York

The Doctor's Choral Society, New York City, is open to medical and dental students who have vocal talent and desire to sing and who will promise steady attendance. Rehearsals are held at the studio of Maestro Alberti at the Hotel Ansonia, Broadway and Seventy-Third Street, Wednesday evenings.

Prizes Awarded to Interns

Dr. William J. Kerr, professor of medicine, University of California Medical School, San Francisco, announced April 6 the award of the Woodward Prizes in internal medicine. Frederick S. Howard, San Jose, now an intern at the University of California Hospital, won the first prize of \$150 for his paper on "Snake Venous in Therapy—A Review of the Literature"; Melvin Friedman, Los Angeles, now an intern at the San Francisco Hospital, won the second prize for his paper on "Early Diagnosis of Gastric Neoplasms," and Arseny K. Hrenoff, San Francisco, won the third prize for his study of epidemic influenza of 1918-1919 in San Francisco. Sidney Rosin of Los Angeles and Emile J. Gough Jr. of San Francisco were given honorable mention.

National Board Questions in Medicine

Following are the questions used by the National Board of Medical Examiners in medicine in part II of the examination held February 12-14: (Part II of the examination is given immediately after graduation from medical school.)

Answer questions 1 and 2 and three of the remaining four:

1. Discuss the principles of the diagnosis and treatment of acute poliomyelitis.
2. What pathologic conditions in the chest may produce symptoms in the abdomen? Indicate briefly differential diagnosis.
3. What disorders of the clotting and bleeding mechanisms may occur in hemophilia, scurvy, jaundice and essential thrombocytopenic purpura?
4. What disturbances in metabolism (exclusive of basal metabolic rate) may be expected in thyrotoxicosis?
5. Enumerate the diagnostic features of the history, physical examination and laboratory data that are necessary to treat adequately a case of lobar pneumonia.
6. Discuss the diagnosis and treatment of Addison's disease.

Duke University

Dr. Halbert L. Dunn, of the U. S. Census Bureau, Washington, D. C., lectured on vital statistics before the students of Duke University School of Medicine, Durham, N. C., March 13; on the previous day, Dr. Mark V. Ziegler, U. S. Public Health Service, lectured on "Opportunities in the United States Public Health Service." "Problems of a Young Doctor in Private Practice" was the subject of an informal discussion in the Duke Hospital amphitheater, February 26, sponsored by the Nu Sigma Nu fraternity, in which questions of ethics and of the legal, social and business aspects of medical practice were discussed by Dr. Wingate M. Johnson, editor of the *North Carolina Medical Journal*; Douglas B. Maggs, of the Duke University Law School, Harold D. Meyer, sociologist of the University of North Carolina; Leroy Lewis, instructor in public speaking at Duke University, and Dr. Wilburt C. Davison, dean of Duke University School of Medicine.

Loan Funds at the University of Pennsylvania

Information about loan funds and noncompetitive scholarships available at the University of Pennsylvania School of Medicine may be had by writing to the director of scholarships and student finances, University of Pennsylvania, Philadelphia.

Among the prizes to be awarded in June 1940 at the medical school is the Dr. Spencer Morris Prize, comprising the annual income from the investment of \$28,000. The award is made to the senior medical student who shall pass the best examination for the degree of Doctor of Medicine. Among the other prizes is the Alumni Medal and a prize of \$50 awarded to the member of the graduating class who attains the highest general average in examinations.

Undergraduate Medical Association

The Undergraduate Medical Association of the University of Pennsylvania held its thirty-second annual meeting April 18. Students who have not yet received their M.D. degrees presented eleven papers. Addresses were given by Dr. James B. Collip, McGill University Faculty of Medicine, Montreal, on "Pituitary Hormones in the Light of Recent Experimental Studies," by E. A. Singer Jr., Ph.D., on "Beyond Mechanism and Vitalism" and by Dr. Samuel C. Harvey on "The Scientific Method in Clinical Surgery." Dr. Edward S. Thorpe Jr. presented the prizes. The Mary Ellis Bell Prize was won by student Renato A. Ricca '40, the John G. Clarke Prize by student Seymour S. Kety '40, and the Grahye

Simpson Priestly Prize by student Martin G. Netsky '43. Honorable mention was given to student William H. Crosby Jr. '40.

Loan Funds at Wisconsin

The income on \$5,000 bequeathed to the University of Wisconsin by Mrs. Cora R. Evans is available as a loan fund to students in the medical school. Interest is charged at the rate of 5 per cent. Loans are made on recommendations of the dean of the medical school. There is an annual prize of \$25 established by the local chapter of Phi Delta Epsilon fraternity, which is awarded at the beginning of the second year to the student who is judged to have done the best work in gross anatomy in the previous year. The university also has a number of fellowships and scholarships available under certain conditions, about which information can be obtained from the dean of the University of Wisconsin Medical School, Madison.

Alumni-Senior Picnic

At the annual picnic of the senior class of the College of Medical Evangelists, Los Angeles, May 12, Dr. Newton Evans was the faculty guest of honor in recognition of his years of effort to raise the standard of scientific training in the school. The Woman's Auxiliary prepared the picnic dinner; there was a ball game and other entertainment. Prizes were offered. The chairman of the entertainment committee was Dr. Theodore S. Kimball.

Prize at the University of Kansas

The A. Morris Ginsberg Prize of \$100 is given annually to the junior student at the University of Kansas School of Medicine, Kansas City, who shows the highest proficiency in the medical courses of the third year.

Michigan Premedical Students Organize

A group of premedical students at the University of Michigan, Ann Arbor, organized the University Premedical Society, March 27, electing Vahan A. Kalajan, a junior from Brooklyn, president of the group; John R. C. Adams, Ann Arbor, vice president, and L. J. Fink, Detroit, secretary.

The Judd Lecture at Minnesota

The seventh annual E. Starr Judd lecture at the University of Minnesota, Minneapolis, was given, March 14, by Dr. Edward D. Churchill, John Homans professor of surgery at Harvard Medical School, Boston, on "Surgery of the Lungs."

Fellowships Available at Yale

Following are some of the fellowships available at Yale University School of Medicine, New Haven, Conn.:

The William Harvey Cushing Memorial Fellowship, for research in surgery.

The Charles Linnaeus Ives Fellowship, for research in pathology.

The Knight Memorial Fellowship, for research in nervous and mental diseases.

Student Health

The Student Health Service at Long Island College of Medicine, Brooklyn, is sponsoring a series of talks on health problems to the students, the first of which was delivered by Dr. Arthur W. Grace, professor of dermatology, on "Athlete's Foot and Acne," and the second by Dr. Alfred P. Ingegno of the Student Health Service, who addressed the junior class on "Tuberculosis Among Medical Students."

Honorary Biological Society

Dr. Francis E. LeJeune, professor of otolaryngology, Tulane University of Louisiana School of Medicine, New Orleans, addressed the Lampyrids, honorary biologic society, recently in the Newcomb administration building on "The 'Significance of Hoarseness,'" illustrated with moving pictures. Sixteen new members have been elected to the Lampyrids from the advanced courses in biology at Newcomb.

Boston Chapter of Student Association

The Boston University chapter of the Association of Medical Students was recently addressed by Dr. William Barry Wood Jr., Baltimore, on "The Treatment of Pneumococcal Pneumonia." Every Friday noon the Visual Education Committee of this chapter presents medical films with comments by physicians from nearby hospitals; on March 8 the film was entitled "Lumbar Sympathectomy"; on March 15, "Cesarean Section," and on March 22, "Modern Surgical Treatment of Varicose Veins."

Michigan Internship Appointments

The majority of the members of the senior class of the University of Michigan Medical School, Ann Arbor, have made final arrangements for their internships. Twenty-two members will intern in the University Hospital in Ann Arbor, thirty-two in Detroit, seven each in Grand Rapids and Eloise, and thirteen elsewhere in Michigan, eight each in New York and Ohio, five in Illinois, three in Pennsylvania, two each in California, Texas, Wisconsin and the U. S. Public Health Service, and one in the U. S. Army.

Dr. Bailey Lectures to Illinois Students

The Illinois chapter of the Association of Medical Students sponsored a lecture at the University of Illinois College of Medicine, Chicago, February 14, by Dr. Percival Bailey, recently appointed professor of neurology and neurologic surgery. His subject was "The Development of Neurology." Dr. Bailey comes to Illinois from the University of Chicago, where he had been professor of neurology since 1928, previous to which time he had worked with Dr. Harvey Cushing in Boston.

Prize Available at Louisville

The Henry Enos Tuley Memorial Prize is available to the undergraduate at the University of Louisville School of Medicine who submits the best essay on "The Ideals of Medicine." The prize consists of the income from \$1,050 subscribed by friends of the late Dean Tuley and is awarded annually at commencement.

Society to Interest Students in Research

The Research Society of the Long Island College of Medicine, Brooklyn, held its final meeting for the year on April 10. The society serves as a medium for the presentation of original investigations by members of the teaching staff of the college and to interest the students in research. This meeting was addressed by Dr. William S. Tillett of the Department of Medicine, New York University College of Medicine, on "Special Immunological Phenomena Occurring During the Acute Phase of Infections."

Until September

The Student Section will not be published during June, July and August.

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ADIPOSE TISSUE, A NEGLECTED SUBJECT

H. GIDEON WELLS, M.D.

CHICAGO

This article is to be published in two parts; the second half will appear next week.

Although adipose tissue constitutes a large part of the total bulk of many of us (18 per cent by weight of a person of average nutrition, Voit) and is subject to many physiologic variations and pathologic alterations, nevertheless it has been the subject of relatively little study. In the leading text and reference books of pathology there is scarcely a mention of the adipose tissue as being possibly an actively functioning organ and a system subject to its own diseases. Because of this lack of consideration, adipose tissue presents many unsolved problems as well as many interesting phenomena, some of which will be reviewed in this presentation.

Nearly thirty years ago the Chicago Pathological Society was privileged to have as a guest speaker that great pathologist and teacher of pathologists Prof. Hans Chiari,¹ of Prague, who spoke to us on "Die Selbstständigkeit des Fettgewebes vom pathologisch-anatomischen Standpunkte." This cast a new light on the subject for me, and the interest aroused by his lecture has kept me thinking about the topic and appreciative of the unexplored possibilities.

The most fundamental problem, the origin and nature of adipose tissue, is still not entirely agreed on. From time to time for many years anatomists, embryologists and pathologists have been discovering and rediscovering the fact that fatty adipose tissue is not merely a common connective tissue loaded with stored simple fats but, to a large extent, structurally, developmentally and functionally an independent special tissue more after the order of the true ductless glands. Nevertheless, this view of the nature of fat tissue does not seem to become widespread, as witness the rediscoveries and the enthusiasm with which they are attended. Possibly the persistence of the older idea lies in the historical fact that this was the teaching of Virchow in his "Cellular Pathology," and hence entered into the basic principles of modern medicine. This teaching was unchallenged from 1853 until 1870, when Toldt first stated that the fatty tissue of mammals is a specific organ, entirely distinct from the connective tissues.

The early view, first thoroughly presented by Fleming in 1870, was that adipose tissue is merely ordinary

connective tissue in which fat has been deposited.² This seems to be the view still generally held by those who have given no particular consideration to the subject, and it involves the assumption that any and all connective tissue can and does serve as a repository for fat when this accumulates in excess. A little reflection shows the impossibility of this conception, for it is found that fat does not become generally and diffusely deposited in the connective tissues throughout the body, even in obesity. Imagine the tragedies if the eyelids of the obese laid on the same amount of subcutaneous fat as the abdominal wall, or if the cerebral membranes became as thick as the omentum. The hands, the feet, the ears and the nose are seen to undergo much less thickening in obesity than the abdominal wall, thighs, buttocks and shoulders. An interesting demonstration of this individuality of fat tissues is furnished by Strandberg.³ A girl aged 12 years lost the skin from the dorsum of one hand through a burn. It was replaced by a graft from the abdominal wall, in making which the surgeon apparently used both skin and subcutaneous tissue. The result was satisfactory for a time, but as the girl matured and acquired the rotundity of a matron the transplanted skin failed to realize its altered status and laid on the same amount of fat as the original abdominal wall. The result was a grotesque, boxing glove effect, as shown in Strandberg's illustration.

This case also serves to demonstrate that the amount of fat deposited is not dependent on either the original innervation or the blood supply but is a specific property of certain tissues not present, at least to the same degree, in other tissues. There is reason, therefore, to believe that adipose tissue is a specialized tissue and not merely ordinary connective tissue in which fat is deposited when in excess.

Histologic and embryologic evidence has also been presented in support of this idea that fat tissue is a specific tissue, in fact a definite organ. Toldt especially advanced this view in 1870-1888, maintaining that adipose tissue is derived from special primitive fat organs, characterized by the formation of highly vascular lobular structures in which a special type of cell exists, with the function of storing and giving up fat in accordance with the supply and demand. The existence of such specialized tissue for the deposition of fat is especially well seen in certain organs and in certain species, especially the hibernating animals. Here in definite parts of the body there develop in embryonic life well defined masses of tissue, characterized by a lobular arrangement with rich blood supply in close relation to masses of cells which are rich in cytoplasm and are of polyhedral form. When such cells take on fat it is first deposited in fine granules, much as in fatty degeneration or as in the lipid-rich cells of the adrenal

From the Otho S. A. Sprague Memorial Institute and the Department of Pathology, University of Chicago.

The Fenger Lecture, read before a joint meeting of the Chicago Pathological Society and the Institute of Medicine of Chicago, Nov. 13, 1939.

1. Chiari, Hans: Tr. Chicago Path. Soc. 8: 65, 1910.

2. A good analysis of the early literature is given by H. Batty Shaw (J. Anat. & Physiol. 36: 1, 1902).

3. Strandberg, J.: Hygiea 77: 372, 1915.

cortex. As the granules become larger the cell takes on a moruloid or "mulberry" appearance. Only with the most extreme deposition of fat do all the droplets fuse into one or a few large fat spaces, and often the nucleus retains its central location and does not take the flattened form at the cell periphery characteristic of the ordinary adipose tissue. In different species the cells exhibit varying degrees of structural change during deposition of fat. Thus in rats, in mice and in hibernating fat glands the adipose cells commonly exhibit the mulberry appearance throughout life, no matter how fat the animal becomes. In adult man this appearance is completely lost in even the perirenal fat when the individual is moderately well nourished.

The existence of such specialized fat organs is well established, and the main question is whether all fat tissue represents similar specialized elements in less well defined lobules or organs or whether ordinary con-

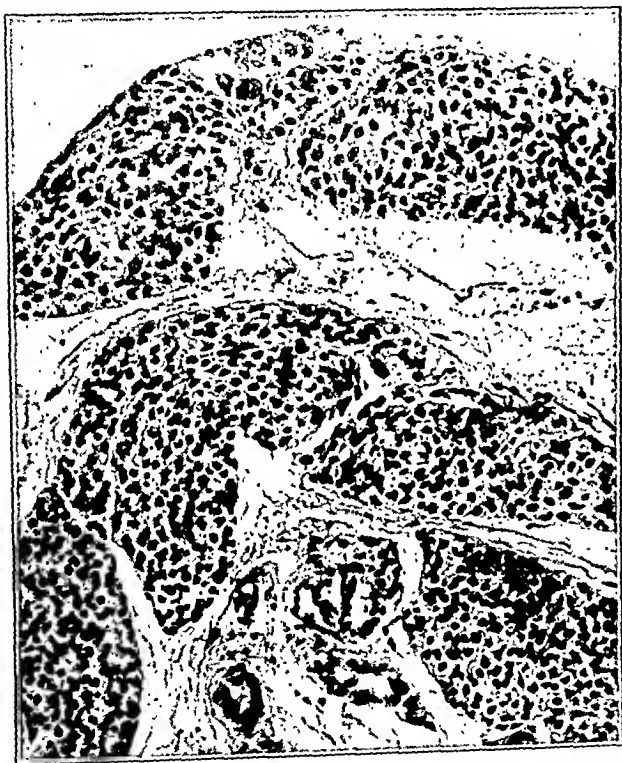


Fig. 1.—Subcutaneous adipose tissue (X 225) in extreme emaciation, showing its lobulated glandlike character and the difference from the connective tissue elements between the fat lobules. From a 5½ months infant emaciated because of inability to assimilate fat, owing to congenital occlusion of pancreatic duct. Xerophthalmia was present. (From the Children's Memorial Hospital.)

nective tissue may not undergo a transformation into adipose tissue at times or even serve as a reservoir for fat without any transformation or specialization.

Early students of the embryologic development of adipose tissue, as Kölliker or Bell,⁴ held that the earliest adipose tissue is derived from primitive connective tissue elements. They said that some cells exhibit the capacity to lay on fat while still appearing as ordinary branching connective tissue cells, while others form the so-called primitive fat organs by a transformation of the connective tissue cells into rounded or polygonal cells with abundant cytoplasm, which cells are collected in lobular groupings before beginning to take on fat. Hammar⁵ especially developed this conception of two types of fat tissue coming from the same primitive con-

nective tissue elements. He found that some of the fat tissue is formed in well defined structures, essentially fat organs, but that some of it is formed from similar cells which have not been set aside in special fat organs. In man, the perirenal fat deposits offer the closest resemblance to primitive fat organs or to the fat glands of hibernating animals. Hammar held that human subcutaneous fat was formed without preformed lobules. In some animals, such as the rat, some of the fat tissue retains the primitive glandular structure throughout life, and as it tends to become pigmented this has been known as brown adipose tissue. Hammar also thought that transition forms between the two classes of adipose tissue might exist.

Despite Hammar's statement that human subcutaneous fat is formed without preformed lobules, at times it exhibits macroscopically a lobular structure. This I have noted especially in endocrine adiposity, as after castration, and in hypophysial dystrophies. Furthermore, lobulated lipomas arise in the subcutaneous tissue, and hernias of lobules of fat are often seen. In emaciated infants also the subcutaneous adipose tissue may appear in the form of pinkish lobules, composed of large cells, rich in cytoplasm and resembling closely a glandular structure with no resemblance to ordinary adipose tissue but corresponding to the preadipose tissue described by the embryologists, or the brown adipose tissue and hibernating glands in the exhausted stage (fig. 1). Indeed, I have had specimens of such tissue sent me for diagnosis by puzzled microscopists.

Such glandlike masses of preadipose tissue in young infants have a reddish appearance when dissected out and look quite different from ordinary fat tissue with "signet ring" structure. They commonly revert after birth to the "mulberry" type of cell with fine fat globules and much cytoplasm, later again assuming the adult type.

Some authors, like Hammar, Chiari and Inglis,⁶ take the compromise position that there are two sorts of adipose tissue, both derived fundamentally from the primitive connective tissue. In one the differentiation becomes so well established that the true, permanent fat tissue is formed, with cells originally rich in cytoplasm collected in definite lobules and in glandlike relation to blood vessels. This is a specialized tissue, located in definite regions and not reverting to ordinary fibrillar connective tissue when the fat is depleted, the fat-poor cells then exhibiting their original cytoplasm-rich or "mulberry" characteristics.

The other sort of adipose tissue, according to this view, merely represents ordinary connective tissue which has, without embryonic differentiation, taken on large amounts of intracellular fat as an adventitious property because of either local or general conditions, often only temporarily. On loss of the fat such tissue reverts to its ordinary character of fibrillar connective tissue. Chiari considers the fat of the bone marrow to be of this character. Such a compromise view is convenient, but it fails to agree with the fact that in some parts of the body the connective tissues are never seen to take on the character of adipose tissue, no matter how great the degree of general adiposity may be.

That the adipose tissue is at least in part originally derived from primitive connective tissue elements is supported not only by embryologic studies, especially those of Bell, but also by its behavior in tumors derived from adipose tissue. Here, as Jacobson⁷ particularly

4. Bell, E. T.: *Am. J. Anat.* 9: 412, 1909 (review of literature).
5. Hammar: *Arch. f. mkr. Anat.* 45: 512, 1895.

6. Inglis, K.: *J. Anat.* 61: 452 (July) 1927.

7. Jacobson, V. C.: *J. Cancer Research* 6: 109 (April) 1921.

points out, mucin forms in abundance, so that malignant tumors from such a source are often described as lipomyxosarcomas, or some such name. The cells that contain the fat in such tumors have been shown by Jacobson to contain mucin as well. But still it would seem that in some parts of the body fibroblasts which do not differentiate into adipose tissue early in development do not later exhibit any ability to accumulate fat or to develop into adipose tissue. Certainly the formation of adipose tissue is not a universal property of fibroblasts, since there exist areas of fibrous tissue that never exhibit the formation of adipose tissue. Mallory goes so far as to say that the fat cell is a perfectly definite type of cell formed by differentiation from a mesenchymal cell, that it is not a fibroblast, that it does not arise from one and that in emaciation it does not revert into one. He says that in emaciated infants, especially soon after birth, the fat cells often increase considerably in size, although containing no fat, and may so resemble large epithelial cells as to be mistaken for some form of tumor. This statement corresponds exactly with my own observation and experience. Even in advanced life the typical perirenal fat cells may revert in emaciation to quite the same type of lobulated, fat-free organ as in emaciated infants (fig. 2).

Maximow's⁸ extensive study of cell origins and transformations also led him to doubt the relation of fat cells to fibroblasts. He depicted the specialized fat cells in the emaciated omentum as entirely distinct from the fibroblasts and also showed fat cells developing from undifferentiated mesenchymal cells about the blood vessels. Possibly fat tissue may develop in adults from persisting undifferentiated mesenchymal cells. The fact that fat cells do not have the power to multiply may be looked on as an evidence of their high degree of specialization.

In recent years the study of adipose tissue has been particularly advanced by the work of Friedrich Wassermann⁹ and his associates, which has shown more clearly the relation of the primitive fat organ to the small vessels and its origin from perivascular mesenchymal cells related to the reticulum. Hence the fat organs are formed from the same embryonic elements as the lymph nodes, namely, capillaries and reticulum cells of the vascular adventitia, which relationship is attested by the tendency for lymphoid tissues sometimes to replace fat tissue, and conversely, as seen especially in the thymus. So too the close relationship of bone marrow and adipose tissue is explainable, and also the occurrence of extramedullary hemopoiesis in adipose tissue.

FUNCTIONAL ACTIVITY OF ADIPOSE TISSUE

In other words, the adipose tissue is to be looked on as part of the reticulo-endothelial system, a conception which suggests more active function for adipose tissue than has been generally recognized, and in harmony with the glandlike histologic character of the unfatted fat organs. For example, Bernard Portis¹⁰ showed that the ability of the omentum to produce antibodies is correlated with the occurrence in this adipose organ of aggregates of reticulo-endothelial cells which appear histologically quite like the primitive adipose tissues before fat storage has begun. Wassermann says also

that in adipose tissue "under certain conditions the blood cell formation may be reestablished, with or after discharge of the stored fatty material, the reticulum being restored in its original condition. Such lability and preparedness for functional change is characteristic in high degree of the fat organs of the omentum."

I am furthermore prepared to accept the view that even while still distended with fat the fat cells may be carrying on important functions not as yet disclosed, for the mere presence of a load of fat need not seriously impair other activities. In such distended cells there is presumably just as much nuclear material and cytoplasm as there was before the fat was deposited, and these functioning elements, being outside the fat, are in immediate contact with the blood supply over a much greater area than in the fat-free cells. Even extreme fatty degeneration and infiltration of parenchymatous cells are not necessarily associated with marked inter-

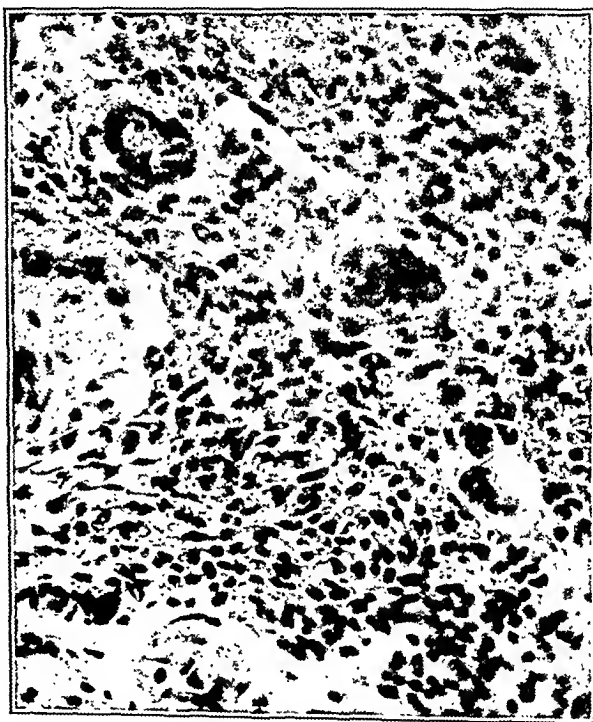


Fig. 2.—Periadrenal adipose tissue ($\times 310$) completely depleted of fat from extreme emaciation taken from a woman aged 66 weighing only 68 pounds (31 Kg.). Death resulted from cancer of the pancreas.

ference with function. The liver heavily infiltrated with fat may respond well to functional tests. Indeed, even toxic fatty metamorphosis may fail to be associated with marked impairment of function. I once carried out an experiment designed to give a crucial test to this question, using as my criterion the ability of dog liver to oxidize uric acid.¹¹ This function was selected for the test on the principle that functions acquired most recently in evolution are usually the ones most easily lost or inhibited. Now of all the steps of purine metabolism the oxidation of uric acid is the one most recently evolved, so that only mammals, and not all of them, exhibit it. Furthermore, in species possessing this function it is not present until just about birth. Therefore, thought I, if any cell function is impaired by fatty degeneration of the cells, this oxidation of uric acid should be the one to go early. So I produced maximum degrees of fatty change in dogs' livers by poisoning the

8. Maximow, in von Möllendorff, Wilhelm: *Bindegewebe und blutbildende Gewebe*, Handbuch der Mikroskopischen Anatomie des Menschen 12: 232 (part 1) 1927.
9. Wassermann, F.: *Ztschr. f. Zellforsch. u. mikr. Anat.* 3: 235, 1927; *Anz.* 63: 155, 1927; 67: 181, 1929; (Nov. 1) 1931; *Sitzungsb. d. Gesellsch. f. Morphol. u. physiol. in München* 41, June 7, 1932; 42, Nov. 7, 1933.
10. Portis, Bernard: *J. Infect. Dis.* 34: 159 (Feb.) 1924.

11. Wells, H. G.: *J. Exper. Med.* 12: 607, 1910.

animals with both phosphorus (which attacks most the peripheries of the liver lobules) and phenylhydrazine (which attacks the centers) and tested the ability of these extremely fatty liver cells to oxidize uric acid. They did it just as well as the normal control liver tissues.

Wassermann says that the "brown fat," lobules of which are regularly found in man although in volume far less than the reticular adipose tissue, differs in being a cellular fat organ which is formed by separation out from the primitive fat organs of free cells which lay on small droplets of fat in "mulberry" fat cells, which are the true lipoblasts. When the fat is resorbed from these cellular fat organs the resulting cellular aggregates resemble paraganglionic organs. "As the fat lobules are reticulo-endothelial organs one cannot speak of fat tissue as of a simple tissue. . . . It is incorrect to distinguish between the two older conceptions of 'fat tissue' as of connective tissue nature according to Flemming,

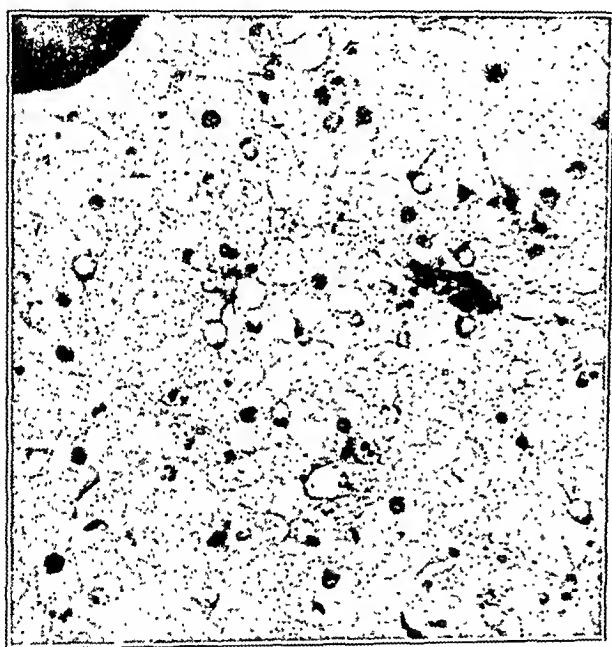


Fig. 3.—Serous atrophy of fat (X 240). Illustrating the capacity of depleted fat cells to take up water. Vertebral marrow taken from same patient described in legend for figure 2.

or as a specific tissue according to Toldt. Neither teaching is tenable with our present understanding."

Dogliotti¹² has shown that both brown and white fat tissue cells store vital dyes, like reticulo-endothelium, which process is especially well seen in depleted fat cells. Bremer¹³ has demonstrated that even the thin cytoplasmic ring about fat-distended cells exhibits the property of taking up granules of vital stains, further indicating the existence of unrealized capacities for functional activity by fat tissue even when distended with fat.

To regulate the functional activity of the fat organs an abundant nerve supply to both the vessels and the parenchyma is present, as demonstrated by Hausberger in Wassermann's laboratory. Section of the nerve supply modifies the behavior of the fat cells in storing and yielding fat. Beznák and Hasch¹⁴ have shown that

it is the sympathetic fibers that control both deposition and mobilization of fat in adipose tissue, and Boeke¹⁵ has demonstrated sympathetic nerve fibers running to individual fat cells. Sympathetic control is also shown by the occurrence of facial hemiatrophy from irritation of sympathetic trophic fibers (Goering¹⁶).

Wassermann has advanced the idea that in such organs as the mammary gland of rodents the intertubular fat tissues seem to play a role in the function of the gland as a whole. The changes required by alternating activity and quiescence are facilitated because the vascular structure of the adipose tissue makes unnecessary a rebuilding of vascular and supporting structures. Apparently when the glandular elements assume preponderance the character of the adjacent fat organ is altered, the mesenchymatous elements being crowded out of the vascular system and assuming the character of stroma. With cessation of tubular function the components of the fat organ come to the fore. Perhaps such transitions take place in other organs, which process has been designated as adiposity ex vacuo. Wassermann says that while sometimes connective tissue cells may take up fat, especially under pathologic conditions, this is merely an exhibition of a phagocytic function. But in such cases the fat, like phagocytized pigments, is a foreign material, and its taking up a scavenger or defense reaction, very different from the deposition and resorption of fat in the fat organs. The latter activity, like the taking up of iron for erythropoiesis, is a function of the reticulo-endothelial organs and not possible for fibrocytes. During fat resorption from ordinary white fat tissue the large drops do not simply grow smaller but the fat is taken up by the cell cytoplasm and consumed therein.

Eger¹⁷ in a recent review on "the fat organs and their significance for metabolism with special consideration of the so-called brown fat," considers the brown fat to be different from white fat even though they have the same origin, for the cells do not assume the signet ring type ordinarily, although some investigators maintain that sometimes they do. He found that the interscapular brown fat of rats uses much more oxygen during *in vitro* metabolism experiments, with a respiratory quotient never over 1, and so differs from white fat not only morphologically but also functionally. He also says that Wendt injected an extract of brown fat of the hedgehog into rats and observed a 20 to 30 per cent fall in basal metabolism. Why brown fat is brown seems to be a mystery, since no pigment can be found in it. Adler-Mönnich and Tiberi¹⁸ also found a difference in the metabolism of brown and white fat, for in a sugar-free Tyrode solution more sugar appeared after incubation with the brown fat, which has a greater oxygen consumption, a lower respiratory quotient and a greater anaerobic glycolysis. Hausberger¹⁹ especially has shown the ability of interscapular fat organs to form fat from carbohydrate by way of glycogen deposited in the fat cells, which is corroborated by several other investigators cited by Adler-Mönnich and Tiberi, who emphasize the influence of nerve control on storage and metabolism. The activity of adipose tissues is also indicated by Schoenheimer's²⁰ studies with fat marked

12. Dogliotti, G. C.: *Ztschr. f. Zellforsch. u. mikr. Anat.* 8: 222 (Dec. 27) 1928.

13. Bremer, J. L.: *Anat. Rec.* 70: 263 (Feb. 25) 1938.

14. Beznák, A. B. L., and Hasch, Z.: *Quart. J. Exper. Physiol.* 27: 1 (July) 1937.

15. Boeke, J.: *Ztschr. f. mikr.-anat. Forsch.* 33: 233, 1933.

16. Goering, in Müller, L. R.: *Lebensnerven und Nerventriebe*, ed. 2. Berlin, Julius Springer, 1924, p. 403.

17. Eger, W.: *Klin. Wchnschr.* 17: 1033 (July 23) 1938.

18. Adler-Mönnich, Josef, and Tiberi, Renzo: *Wien. Arch. f. inn. Med.* 30: 259, 1937.

19. Hausberger, F. X., and Gujot, O.: *Arch. f. exper. Path. u. Pharmakol.* 187: 647 (Nov. 29) 1935.

20. Schoenheimer, Rudolf, and Rittenberg, D.: *J. Biol. Chem.* 111: 163 (Sept.) 1935.

with heavy hydrogen, which showed that most of the food fat is deposited in the adipose tissue before being used.

Wassermann found that the thin rim of cytoplasm of the distended fat cell can swell up with fluids and suggests that adipose tissue may play a role in water metabolism. This view is supported by the remarkable and deceiving water losses and retentions observed in defatting treatments of the obese, as especially emphasized by Newburgh.²¹ The capacity of depleted fat cells to take up water is sometimes seen in serous atrophy of fat, as shown in figure 3, in which, because enclosed in bone, the depleted fat cells could not shrink and became extremely hydropic.

GLANDULAR ADIPOSE TISSUE

There is no question as to the specialization of the adipose tissue in certain locations and species, especially in the so-called hibernating glands. These are prominent anatomic features, with characteristic location and appearance. Rasmussen²² says that this tissue has been found in forty-seven species (five insectivora, nine chiroptera, thirty-three rodentia) most of which hibernate, but it is also present in some animals that do not hibernate, e. g., rats, mice and rabbits. So glandlike is this tissue that Buffon said that in the marmot it resembled the mammary gland of a cow. Microscopically this specialized adipose tissue differs from ordinary fat tissue in having the fat in relatively small globules instead of in a single large droplet, with a round nucleus instead of a flattened nucleus crowded against the cell wall by the fat. That is to say, the hibernating glands retain the structure characteristic of the so-called pre-adipose tissue. This is well brought out by the two illustrations from Rasmussen of human infantile perirenal adipose tissue and the axillary brown adipose tissue of the rat respectively. No matter how fat the rodent becomes, these cells do not lose their moruloid structure to become signet ring fat cells, and when the fat is depleted by starvation they retain their gland cell character, never reverting to a fibroblast character.

The function of this tissue in hibernation is not known. It is too widespread to permit of successful extirpation experiments. Once it was looked on merely as a reservoir of fat for use during the period of fasting, but this is made improbable by the fact that it can furnish only an insignificant amount of food, at best but one twentieth to one thirtieth of the tissue weight lost in hibernation. From time to time a relation to the endocrine system has been suggested, partly because of its resemblance to the fatty involuted thymus or to the vacuolated cells of the adrenal cortex. Cramer²³ points out a supposed richness in lipoids of these adipose glands as evidence of a relation to the endocrine system. Finding that these lipoids are retained in the cells during simple starvation but disappear in animals on a vitamin deficiency even without starvation, he suggests that the moruloid cells have the function of a storehouse for vitamins and lipoids. In simple loss of fat from undernutrition the lipoids of this tissue disappear to such an extent that it may look almost like a blood clot because of its great vascularity. Of some possible significance is the fact that the adrenal, and in some species the ovary, is embedded in this sort of tissue and that the adrenal cortex and lutein cells resemble the adjacent

multilocular fat cells in their richness in lipoids. In favor of Cramer's hypothesis is the fact that this structure seems to be important for hibernating animals, as indicated by its prominence in them. As it furnishes an insignificant quantity of stored food during hibernation, it may well be that it furnishes an important quality of material.

The evidence that the content of the glandular adipose tissue is largely lipoidal has been given only by microchemical methods—Cramer not having made chemical analyses—but he calls it the "lipoid gland" or "cholesterol gland." Carlier and Evans²⁴ found in the hedgehog only a trace of lecithin as inferred from the phosphorus. Cramer's ideas have received support recently from Tonutti,²⁵ who found microchemical evidence of lipid richness in brown fat and evidence that fat-soluble vitamins are stored here. Animals deprived of vitamin A or D have brown fat cells containing no plastosomes and only a fine network staining black with osmic acid. On being fed either of these vitamins this osmophil structure disappears and plastosomes accumulate, apparently storing the vitamins.

Hoepke and Nikolaus²⁶ have recently also demonstrated the probable presence of vitamin C in the hibernating gland of the hedgehog, as well as a lipid resembling cerebrin of unknown function. They suggest that water formation from stored fat in hibernating animals may provide needed water, as it is said to do in the camel's hump. Wendt's²⁷ observation that an extract of hedgehog hibernating gland injected into rats lowers basal metabolism, blood pressure and heart rate suggests that this tissue functions by suppressing metabolism during the winter sleep, perhaps through action on the endocrine tissues.

HUMAN GLANDULAR ADIPOSE TISSUE

Although man is not a hibernating animal, glandular adipose tissue of somewhat similar structure is found in some parts of his body, particularly in the dorso-cervical and interscapular region. Hatai²⁸ pointed out the resemblance of this tissue to the hibernating glands, and it was further studied by Bonnot.²⁹ It is composed of lobulated masses of adipose tissue in which the cells are mostly of the multilocular type and is associated with lymphoid tissue, a fact explained by Wassermann's observations. Its dark color in old bodies indicates its resemblance to the so-called brown fat of rodents. Its special nature is indicated by the resemblance to pancreas of the fresh tissue when well nourished; in emaciated subjects it is red because of the vascularity. Even under normal conditions its fatty character is not suspected until it is examined microscopically (Rasmussen). The fact that these masses are particularly conspicuous in cretins (Shattock) and in them disappear with thyroid treatment supports Cramer's theory that the glandular adipose tissue is related to the endocrine system, as does the histologic resemblance to adrenal cortex.

The perirenal fat tissue in man exhibits some of the characters of glandular adipose tissue, the cells being more or less multilocular when not too well filled with fat, although in well nourished adults they appear like ordinary fat tissue. In infants the multilocular type of cells is often distinct, especially if nourishment is poor.

24. Carlier, E. W., and Evans, C. A. L.: *J. Anat. & Physiol.* 38: 15, 1903-1904.

25. Tonutti, E.: *Klin. Wchnschr.* 15: 1788 (Dec. 5) 1936.

26. Hoepke and Nikolaus: *Ztschr. f. mikr.-anat. Forsch.* 40: 1, 1939.

27. Wendt, C. F.: *Ztschr. f. physiol. Chem.* 240: IV (parts 2-4) 1937.

28. Hatai: *Anat. Anz.* 21: 369, 1902.

29. Bonnot: *J. Anat. & Physiol.* 43: 43, 1908.

21. Newburgh, L. H.: *The Cause of Obesity*, J. A. M. A. 97: 1659 (Dec. 3) 1931.

22. Rasmussen, A. T.: *J. Morphol.* 38: 147, 1923; *Endocrinology* 6: 760 (Nov.) 1922.

23. Cramer, W.: *Brit. J. Exper. Path.* 1: 184 (Aug.) 1920.

Shaw has described multilocular fat cells in the subpleural tissue of infants, and others have observed it about the trochanters, in the axillas and elsewhere. Inglis⁶ has reported a "lipoma glandulare" and a cystic angioma arising in the interscapular gland. Reuben and Peskin³⁰ also have reported a cystic tumor in the interscapular gland of a 4 weeks infant.

SPECIALIZED FAT TISSUES

There exist in many species, of animals masses of adipose tissue so localized or so behaving that they evidently have special purposes or so located or developed that they constitute special racial or species characteristics. Among these, particularly interesting is the so-called sucking pad or corpus adiposum buccae.

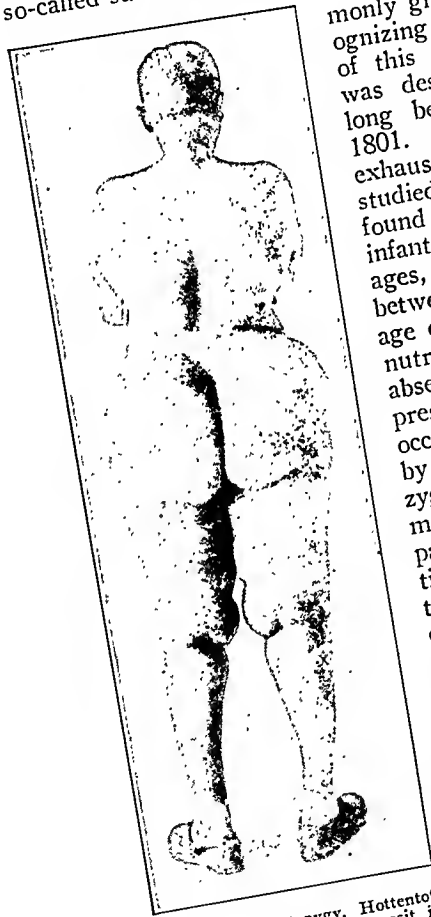


Fig. 4.—Steatopygia. Hottentot-Bushman type of fat deposit in male American Negro aged about 55.

Although Bichat is commonly given credit for recognizing the fatty nature of this structure, it really was described and known long before his report in 1801. It has been most exhaustively discussed and studied by Scammon,³¹ who found it present not only in infants but in adults of all ages, there being no relation between its size and the age or condition of general nutrition. Sometimes it is absent on one side and present on the other. It occupies the fossa bounded by the masseter, buccinator, zygomatic and platysma muscles. The parotid duct passes across it. The function is supposed to be to prevent collapse of the cheeks in sucking so that they are not drawn in between the jaws. Although structurally isolated, and persisting despite emaciation, it seems not to exhibit the moruloid fat cells of glandular adipose tissue. Chemically it is said to have fats of higher melting point than subcutaneous fat (Lehndorff), but this difference is too slight to be of importance. Cameron³² in 1921 was able to find fifteen cases of lipoma of this structure in the literature and reported a sixteenth lipoma weighing 36 Gm. It has also been known to herniate an intra-oral buccal mucosa after traumatism, forming an intra-oral tumor.³³ What was interpreted as a myxosarcoma of the sucking pad in a six months fetus was reported by Zahn.³⁴

In emaciated infants the sucking pads may become extremely prominent because they are not absorbed as is the subcutaneous fat, so that they may be mistaken for abscesses or other pathologic conditions, and bilateral inflammatory hyperplasia has been reported.³⁵

What enables the fat to persist here, despite a good vascularity, when the rest of the fat is being depleted is an unsolved problem. Lasch³⁶ found the iodine number higher in the cheek pad fat than in the abdominal fat, and it was still lower in the subcutaneous fat, this being in reverse order to their rates of disappearance in emaciation; but whether these two facts are related is not known. The sucking pad may become merely a gelatinous watery mass, but still a pad, in extreme emaciation.

Of interest is the finding by Shattock of this structure in infant chimpanzees and baboons but not in a monkey.

STEATOPYGY

Shattock³⁷ has discussed at length steatopygia and other matters related to adipose tissue. He says that the prominent buttocks of Bushmen and Hottentots are the most notable human examples of such local obesity. The black Hottentots are derived from the Bushmen, who are yellow, through crossing with Bantus. These structures were studied by Cuvier in 1815 in a Bushwoman exhibited in Paris as the "Hottentot Venus." Like the camel's hump, the buttocks become flabby during emaciation.

Hooton³⁸ says that in true steatopygia the fatty mass is traversed in all directions by connective tissue and rests on the gluteus maximus. When viewed in profile the fatty mass has a shape approximating a right triangle, the mass sloping downward and inward to meet the thigh. This characteristic shape is not encountered in the majority of fat European or Negro women, in whom the buttocks are rounded rather than pointed. Miller³⁹ notes the resemblance of the fat deposits in a woman with acromegaly to steatopygia and raises the question whether racial differences may depend on genetic endocrinologic differences. The condition is not confined to the females; at Oak Forest Infirmary there has been for years a Negro with typical steatopygia who told me that his mother and a sister presented the same condition; he has no children (fig. 4).

Steatopygous figures and carvings are found in ancient Egyptian relics, believed by Petrie to represent African captives or the product of intermarriage (e. g. the Queen of Punt, eighteenth dynasty [Somaliland] about 1500 B. C.). "Darwin cites Burton to the effect that the Somal men are said to choose their wives by ranging them in a line and by picking out her who projects farthest a *tergo*." The gluteal hump is independent of any enlargement of the thigh in the modern Hottentot-Bushman steatopygia. Some early Grecian pottery figures reproduce typical steatopygia, according to Shattock. From a study of archeologic evidence, Petrie says "There is thus a series of five regions in which the steatopygous race appears, and which lie apparently from north to south in the order of successive dates of the remains." All are closely related geographically to Africa and the Mediterranean, so their common origin in Africa seems assured.

HUMPS OF CAMEL AND ZEBU

Shattock says "These steatopygous accumulations we must view, indeed, as strictly analogous to the dorsal store of fat, say, on the back of the camel." When the

30. Reuben, M. S., and Peskin, A. R.: Arch. Pediat. 45: 243 (April) 1928.
31. Scammon, R. E.: Anat. Rec. 15: 267, 1918-1919.
32. Scammon, R. E.: Lipoma of the Corpus Adiposum Buccae, J. A. A. L.: 1912.
33. Scammon, R. E.: Chir. 212: 398, 1928.
34. Zahn, G.: Chir. 22: 387, 1885.
35. Neff, F. C., and Billingsley, J. A.: Hyperplasia of the Corpora Adiposa Buccarum, Am. J. Dis. Child. 40: 813 (Oct.) 1930.
36. Lasch, W.: Jahrb. Kinderh. 107: 223 (Nov.) 1924.
37. Shattock, S. G.: Proc. Royal Soc. Med. Path. Sec. 2: 207, 1909.
38. Hooton, G. S., Jr.: Harvard African Studies 2: 83, 1918.
39. Miller, G. S., Jr.: Am. J. Phys. Anthropol. 14: 79 (Jan.-March) 1930.

camels are starved, this "hump" hangs down. It serves as a supply on the desert, the nutritive companion to the famed water supply of this beast, and is composed of unilocular fat. The hump on the withers of the zebu differs in containing some muscle, which may serve as a store of protein since no motor function is evident for this tissue. The hump of the bison is not a store of fat but is due to the length of the spinous processes of the vertebrae.

FAT DEPOSITS IN THE TAIL

In certain small marsupials this deposition is conspicuous and may serve in estivation or hibernation. Much more striking are the fat-tailed sheep, of which there are several breeds, chiefly in the Orient and South Africa. One collected by Hunter is pictured by Shattock. Herodotus describes such sheep as follows: "There are also in Arabia two kinds of sheep worthy of admiration, the like of which is nowhere else to be seen. The one kind has long tails not less than three cubits in length, which, if they were allowed to trail on the ground, would be bruised and fall into sores. As it is, all the shepherds know enough of carpentry to make little trucks for their sheep's tails. The trucks are placed under the tails, each sheep having one to himself, and the tails are then tied down upon them. The other kind has a broad tail which is sometimes a cubit (18 inches) across." The Jewish Bible speaks of the sacrifice of the fat-tailed ram. To this day in South Africa the tail of the sheep is supported by a small truck on wheels even as in Arabia in the days of Herodotus. Other species of animals have also localized fat deposits. In man the perirenal fat is a special depot in that it resists absorption longer than most other deposits. Salmon and other fish exhibit adipose fins that seem to be merely fat deposits and not functioning structures.

One of the first serious efforts to study the question of whether adipose tissue has any other function than fat storage utilized the broad-tailed sheep for this purpose. Schaternikoff and his colleagues⁴⁰ removed the tail, weighing 6,765 Gm., from one of these animals and found that the respiratory quotient was higher after the operation. In our investigation it may perhaps follow that the role of adipose tissue is greater than is usually assumed. It is not only a simple fat reserve but it also assumes a certain part in synthetic and cleavage reactions of the living organism. These conclusions are merely provisional." These conservative conclusions from a large scale study have been fully supported by more recent studies on the fat tissues by micromethods, as indicated previously.

PERIAORTIC FAT PADS

The masses of adipose tissue at the base of the heart of dogs⁴¹ and other animals as well as in man seem to have an existence somewhat independent of the general adipose tissue. In man they seem to increase with age, independent of the amount of body fat elsewhere. They seem to be particularly prominent in persons with coronary artery disease and fibrous myocarditis and may, through their arteries, furnish a source of collateral circulation.⁴²

(To be continued)

EXPERIENCE WITH ARTIFICIAL IMPREGNATION IN TREAT- ING STERILITY

REPORT OF THIRTY-FIVE CASES

WILLIAM H. CARY, M.D.

NEW YORK

Because of the great interest physicians have manifested in artificial impregnation as a method for treating certain cases of sterility and because of the public interest evoked by reference to this subject in the popular press, it seems appropriate to report one's experience with this procedure in a series of consecutive and unselected cases. Seventeen cases in which the husband was infertile and the wife was inseminated with a donor specimen from one to six times with eight¹ successes will be briefly abstracted, and eighteen additional problems, in which the uterus was instilled with the husband's specimen a total of thirty-seven times with four pregnancies, will be analyzed. All these patients were cared for in private practice except one in the latter group, successfully treated by my associate, Dr. McLane, in the Sterility Clinic at the New York Hospital. Numerical results may be far from impressive, partly owing to discouraging conditions, but the perplexing problems encountered in the management of these cases may prove of some interest. These cases are few in number, comprising but a small percentage of the whole sterility series, because proper indications are relatively rare; many patients have an antipathy for or are uninformed regarding semiadoption by the use of a donor specimen, and I have not assumed the responsibility of recommending this procedure in a single instance. As the processes of reproduction are better and more generally understood by the public, it seems obvious that consultations concerning semiadoption will become more frequent, and physicians should be prepared to render this service.

HISTORICAL SURVEY

While contributions concerning artificial impregnation in the human species are relatively rare and often fragmentary or restricted to a very few successful efforts, one surmises that the use of a foreign specimen has been tried by many physicians in isolated and unreported cases. There is ample evidence, however, that the injection of the husband's specimen to the uterus is too frequently employed and often without understanding of the indications, the principles of technic or the risks involved. This procedure and the indiscriminating use of glandular therapy have replaced curettage as the empirical panacea for sterility and should be as forcefully discountenanced. I am informed by Professor Himes,^{1a} who made an extensive review of anthropologic literature in studying the history of contraception, that no reference to artificial impregnation by preliterate people was noted. Credit for the first successful employment of this method is usually given to John Hunter, who, in a case of hypospadias, artificially transferred the semen to the vagina. Although this case was not

1. Since this article was written, patient 353 has been successfully impregnated for the second time by cervical insemination on the tenth day of the cycle; and the very obstinate problem 446 (entered as a failure) has terminated successfully by treatment on the tenth day of the cycle, ovulation being indicated by increased cervical secretion which coincided with the lowest basal temperature record made over a period of two months, in accordance with the technic of T. T. Zuck (The Relation of Basal Body Temperature to Fertility and Sterility in Women, *Am. J. Obst. & Gynec.* 36:998 [Dec. 1 1938]).

1a. Himes, N. E.: *Medical History of Contraception*, Baltimore, Williams & Wilkins Company, 1936.

40. Schaternikoff, M. N.; Molischanowa, O. P., and Tomme, M. T.: *Arch. f. d. ges. Physiol.* 218:216, 1927.

41. Davis, D. J.: The Periaortic Fat Bodies, *Arch. Path.* 4:937 (Dec.) 1927.

42. Robertson, H. F.: *Am. J. Path.* 6:209 (March) 1930.

reported until 1799 by Everard Home,² it is thought to antedate the artificial fecundation of a dog which was recorded ten years earlier by Spallanzani.³ In this country Sims⁴ in 1866 is credited with the first successful experiment in this field. A sterile patient with a poorly developed and retroverted uterus, complicated by cervical stenosis, was finally impregnated after many injections of the husband's specimen. He tried the method on six other patients with poor results. Three years later Girault⁵ reported a few successful results (the first having occurred in 1838), the husband's specimen evidently having been used in these cases. In the latter part of the century Gérard discussed sterility and the indications and technic for artificial impregnation in a humorously illustrated semiscientific book which is not dated and is said to be very rare. In the early part of this century several articles describing the results of mechanical fecundation in the breeding of animals made their appearance. Iwanoff's⁶ work in 1907 seems to be of major significance, and subsequent studies⁷ by French and Russian investigators are largely based on his procedures and will not be further discussed. The largest series in the human species is that reported by Schorohowa⁸ in 1927, consisting of eighty-eight cases with thirty-three successful results. Séguy⁹ reported on two series in 1935. In the first (1924-1925) a total of twenty-four treatments was given to a few women without a single successful result. A second series covering a period of five years (1924-1929) included sixteen cases with seven successful results. Donor specimens were used in only two cases. Scientific data are limited. More recently one successful case has been reported by Seashore,¹⁰ and Stokes¹¹ describes his technic and claims success in a number of cases which are not classified. There are perhaps two or three other papers discussing the theory of the procedure and the results of other investigators, and Seymour¹² relates unique experiments in this field and seems to attain results not equaled by other reporters.

In choosing a donor the physician has certain obligations to discharge for the prospective parents, but he should recognize and frankly state the limitations of responsibility which he can assume. Little difficulty has been met in securing healthy young men of education, good breeding and fine family for this purpose. Chief emphasis has been placed on character. Familial and transmissible diseases were avoided. A negative Wassermann report and a history of freedom from genital infection have been considered imperative. All donors were of American ancestry but racial factors were carefully matched. The greatest difficulty has been encountered in securing donors with high indexes of fertility as well as personal qualifications, six applicants being examined in one group to secure two donors whose

seminal criteria were satisfactory. Requests for a straight Anglo-Saxon ancestry could be fulfilled, but in one or two instances when scientifically trained patients raised the question of color of eyes and other traits I promptly refused to accept any responsibility as to the operation of the mendelian law. Inquisitive patients have been told that possibly more care had been exercised in selecting donors of good ancestry than is commonly exercised by young people in choosing their marital companions and further responsibility would not be assumed. This reply is usually satisfactory.

LEGAL CONSIDERATIONS

Laws governing general medical practice are, of course, applicable to this procedure but I am informed that there is no specific statute in New York state regarding this work, and an expert in real estate law found no ruling on property rights relative to this method of semiadoption. To recommend any legal procedure would probably be unwise, as the physician will doubtless be guided by circumstances and personalities. A simple written consent signed by the husband and wife and histories filed indicating that both parties have submitted to preparatory examinations should constitute adequate protection. Instances may arise in which patients are slightly known and more formal permission may be desirable. In one instance, in which the inquiring couple were being forced by a wealthy relative to take this action against their obvious desires, I refused to proceed. Patients are told, incidentally, that no foreign body such as semen can be introduced within the uterus without a slight risk of reaction and that the same chances of abnormal labor and defects in progeny are involved as in any delivery. Patients have been influenced not to invite the chance of later trouble by selecting any member of the family as donor. Certain legal aspects of this problem and an interesting suggestion of subsequent legal adoption may be found in an editorial in *THE JOURNAL*.¹³

TECHNIC

Only principles in technic can be properly discussed, for lack of experience, inability to correlate variations in procedure with results and the unknown factors involved make definite recommendations impossible and an imposition on credulity.

While experimenters, too numerous and well known to permit naming, have given much information regarding the correlation of ovulation with the menstrual cycle, the selection of the day on which to introduce the semen remains a perplexing problem. The daily examination of vaginal smears to determine the date of ovulation is cumbersome and difficult of interpretation, and much obscurity persists as to whether the demonstration of the follicle-corpora luteum sequence of influence is a certain criterion of the liberation of a healthy ovum. With rare exceptions I have found the menstrual cycle to vary from twenty-six to thirty days in length in the so-called regularly menstruating women, and greater differences are not rare. Except in cases studied by Papanicolaou I have chosen the eleventh to the fifteenth day of the cycle for insemination, depending, when possible, on predominant habits as noted in the past menstrual calendar. Earlier days have been selected for patients with habitually short cycles.

With few exceptions, semen specimens have been produced at the office, collected in a previously prepared sterile and absolutely dry glass container and

2. Home, Everard: Account of the Dissection of a Hermaphrodite Dog, *Philosoph. Tr. Roy. Soc. London* 18:162, 1799.

3. Spallanzani, Lazzaro: *Generazione Relativa*, the Natural History of Animals and Vegetables, vol. 2, p. 250.

4. Sims, J. M.: *Clinic*, vol. 2, p. 250. Surgery, with Special Reference to the Management, New York, William Wood & Co., 1866.

5. Girault: *Étude sur la génération artificielle dans l'espèce humaine*, Paris, 1869, p. 15.

6. Iwanoff, E. E.: De la fécondation artificielle chez les mammifères, *Ark. biologicheskikh nauk* 12:377-508, 1907 (bibliography of eighty-four titles).

7. Walton, A.: The Relation between Density of Sperm Suspension and Fertility as Determined by Artificial Insemination of Rabbits, *Proc. Roy. Soc. London*, series B, 101:306 (April) 1927.

8. Schorohowa, A. A.: Fécondation artificielle dans l'espèce humaine, *Gynéc. et obst.* 15:132 (Feb.) 1927.

9. Séguy, J.: Au sujet de l'insemination artificielle dans l'espèce humaine, *Bull. Soc. de sexol.* 2:417-419 (Nov.) 1935.

10. Seashore, R. T.: Artificial Impregnation, *Minnesota Med.* 21:641-644 (Sept.) 1938.

11. Stokes, W. R.: Artificial Insemination, *M. Ann. District of Columbia* 7:207-211 (July) 1938.

12. Seymour, Frances L.: Viability of Spermatozoa in the Cervical Canal: Preliminary Report, *J. A. M. A.* 106:1728 (May 16) 1936.

13. Artificial Insemination and Illegitimacy, editorial, *J. A. M. A.* 112:1832 (May 6) 1939.

transferred to the woman as soon as sufficiently fluid to permit easy handling in a sterile dry cannula. In one of our successful cases, however, the husband's specimen was more than an hour old. Various cannulas have been tried, but the most suitable one for general use seems to be that which I described some years ago for aspirating the cervical secretions and now widely distributed for that purpose. Arrangements are so made as to eliminate any chance of contact between the donor and the patient.

For the operation, the patient is placed in the Sims position because she is better relaxed, her vision is directed from the field of operation and the Sims speculum can be better removed without spilling the bulk of semen, which is to remain bathing the cervix whether simple insemination or injection to the uterine cavity is carried out. When injecting a donor specimen into a patient having a fully patulous cervical canal with normal secretions, a few minims of semen (0.5 cc. or less) is held in contact with these secretions for approximately five minutes to insure ample sperm invasion. Success has also followed simple insemination in such cases and may be as efficient. When the husband's specimen is to be instilled into the uterine cavity not more than 10 minims (0.6 cc.) is used so that there is no danger of invading the tubes and producing severe colic and possibly inflammatory reaction. Under proper conditions only slight pressure is usually required, but I have subjected semen to a pressure of 200 mm. of mercury for one minute without altering its microscopic appearance. When the specimen has been placed and evidences of the procedure have been removed from the room the patient assumes the dorsal position and continues reclining for at least one half hour. A very few patients have suggested and tried emotional preparation at home just prior to insemination. Physiologic results are unevaluated.

INDICATIONS FOR DONOR SPECIMEN

The infertility of the husband, established beyond reasonable doubt by the causative factor or the failure or inaccessibility of appropriate treatment, is the primary indication for utilizing extramarital semen. The consultant should, when considered necessary, confirm the validity of this indication and ascertain that the husband is assured of the facts and reconciled to the procedure. In one instance in which persistent necro-spermia was diagnosed the rarity of the condition and the history of repeated transportation of the specimens in rubber containers led to a reexamination which revealed the normal fertility of the husband. The histories to be abstracted record hopeless azoospermia as a prevailing indication, but in a small minority high degrees of seminal deficiency unimproved by competent treatment seemed ample reason for the use of a donor specimen. Two couples in this group reported marital pregnancies one and three years, respectively, after delivery; one occurred after marked seminal improvement resulting from previously declined treatment, and the other was proved to be a rare instance of fecundation by a specimen with a low sperm count (16,000,000 per cubic centimeter, postgestational). In the entire sterility series there is an 0.8 percentage of cases in which pregnancy was brought about by specimens with normal motility but greatly reduced cell counts (19,000,000 or less per cubic centimeter, postgestational count). Hotchkiss¹⁴ has reported similar cases.

14. Hotchkiss, R. S.; Brunner, H. K., and Grenley, Philip: Semen Analysis of Two Hundred Fertile Men, *Am. J. M. Sc.* 196: 362-384 (Sept.) 1938.

Further essential indications, both positive and negative, refer to the wife and include (a) an understanding of and a stated desire for this method of fecundation, (b) reasonable evidence of her fertility, and (c) the absence of factors which would greatly increase the immediate risk of the procedure or seriously complicate an ensuing pregnancy. It would be presumptuous, even if space permitted, for me to attempt a definition of female fertility. A careful history and an examination of the wife should be included in plans for the treatment. The past history should eliminate suggestive symptoms of genital infection. One should emphasize that report of menstrual deficiency is not a reliable index of infertility, but when it is associated with obvious degrees of uterine underdevelopment serious doubt must be entertained. The examiner should note patulousness of the cervical canal to the cannula when artificial spermigration is to be undertaken, and endocervicitis should be regarded as a contraindication to uterine instillation. The pelvis should be free from palpable pathologic change and the patency of the tubes demonstrated. Partial occlusion presents implications which should be weighed with reference to the effectiveness of the method and the risk of ectopic pregnancy. Finally, the wife should be free from any disease which would render child bearing a hazardous undertaking.

While case abstracts seem essential for scientific appraisal, brevity demands that normal and irrelevant items be excluded. The reader may assume that within my ability constitutional factors have been weighed, sexuality appraised, adolescent histories reviewed, hereditary and endocrine influences cautiously considered, metabolic readings obtained, tubal patency confirmed, male urologic studies carried out and anatomic and functional observations correlated in all cases. Some interesting but nonessential facts have been omitted to safeguard identification. Unless otherwise stated, sterility was primary and deliveries have been successful to date. The day of menstrual onset is counted as the first day of the cycle, and insemination was carried out but once in any monthly cycle.

REPORT OF CASES

CASE 427.—The indication was azoospermia. Married three years, the wife, 23, was of normally feminine type. Menstruation, starting at 11, had a twenty-eight to thirty-five day cycle and a five day period with dysmenorrhea. Obesity occurred at 14 (170 pounds [77 Kg.]). Amenorrhea and late periods were experienced while studying in Europe. Acute antelexion and stenosis were corrected under anesthesia. Endometrial biopsy (twenty-third day) revealed secretory and proliferative fragments. Six trials (twelfth to sixteenth day) failed. Normal ovulation was questioned. I arranged a study of vaginal smears by Papanicolaou, who reported very faint ovarian influence. Thyroid extract was begun (basal metabolic rate was -8), and two months later three postmenstrual injections of gonadotropic substance were given. Success followed cervical insemination on the fourteenth day of that cycle.

CASE 466.—Azoospermia was present. Permission and arrangements, including selection of the donor by the family, were carried out from a distance by cooperation with the family physician. The patient, 29, married five years, was uncooperative, studiously vague and chiefly interested in sight-seeing. Preliminary study was inadequate. Menstruation was normal, of twenty-eight day type. The specimen was sent by messenger without data and found of less than fair grade. Injection made at the end of the second week of the cycle under my protest gave an unknown result; failure was assumed.

CASE 211.—Semen was highly deficient. Treatment was unavailable; sterility had lasted one year. The wife was 23. Intermittent amenorrhea in adolescence was now relieved, with a normal cycle. Antelexion of moderate degree was noted.

Insemination of a donor specimen at the end of the second week of the cycle was successful.

CASE 406.—There was azoospermia. Married five years, the wife was 25, of small stature and immature type with mild uterine hypoplasia. Menstruation, starting at 14, had a twenty-eight day cycle and four day period. Donor specimens, in accordance with vaginal smear determinations by Papanicolaou, were injected on the fifteenth, tenth, thirteenth, twelfth and finally with success on the thirteenth day of the cycle. Dysproportion necessitated cesarean section.

CASE 396.—The specimen was highly deficient, with only slight improvement. Married six years, the wife, 27, had asthma during adolescence and pneumonia at 14. Menstruation, starting at 16, had a thirty day cycle and five day period. The pelvis was normal. The endometrial biopsy revealed a normal secretory phase. The average basal metabolic rate was -16 . Continuous thyroid therapy was given. A donor specimen was introduced on the fourteenth, thirteenth and fifteenth days of cycles with failure to date.

CASE 353.—Highly deficient semen with many abnormal cells was unimproved by capable treatment. Married six years, the wife, 31, had mild uterine hypoplasia and cervical stenosis. Menstruation, starting at 13, had a twenty-seven day cycle and five day period. Office dilation was done to accommodate the cannula. After two requested and unsuccessful attempts with the husband's specimen, success followed the second trial of a donor specimen on the eleventh day of the cycle (incidental study by Papanicolaou).

CASE 244.—Highly deficient semen in an otherwise healthy man was unimproved by treatment. Married fourteen years, the wife was healthy but had marked uterine hypoplasia, a long conical cervix and very scant periods. Menstruation, starting at 13, had a twenty-eight day cycle and three day period. Past history included curettage and x-ray stimulation to the ovaries. At the age of 42 a trial donor specimen was urgently requested to exhaust the possibility of relief. Two attempts on the eleventh and twelfth days of cycles failed, and adoption was advised.

CASE 446.—Azoospermia was present. Married three years, the wife, 32, was normally feminine in type, with normal pelvis and a short menstrual cycle—from twenty-three to twenty-six days, with onset at 14 and a five day period (the patient refused any study which might indicate failure of ovulation and elected repeated trials). Attempts on successive months on every day of the cycle from the seventh to the thirteenth, inclusive, have failed to date. Incidental empirical treatment favorable to ovulation was given.

CASE 340.—There had been suspension of sexual relations and sterility (secondary). The wife, 23, was married before she was 17. Gynecologic history began at 18. Abortion was induced in the Far East and the later history suggested acute salpingitis while on shipboard. The pelvis was sensitive but without palpable pathologic change. Contraindications were emphasized but the patient insisted and gave a written release from responsibility. Two trials on the twelfth and twenty-second days of cycles failed. Tubal reaction followed the second trial.

CASE 245.—Highly defective semen and subnormal masculinity were treated unsuccessfully. The wife, 28 and sterile four years, had a normal pelvis and menstruation. Insemination with a donor specimen was done on the fourteenth, the tenth, and finally, successfully, on the fifteenth day of the cycle.

CASE 447.—Azoospermia was present. Married four years, the wife, 27, was hyperfeminine and graceful in type; she had a scientific career. Menstruation, starting at 13, had a short cycle (eighteen to twenty-five days) and a seven day period with slow onset. Retroversion was correctible by pessary. The basal metabolic rate was -14 . No response followed thyroid therapy, calcium or gonadotropic substance. Secretory endometrium was noted on the fifteenth day of the cycle. A donor specimen was injected on the eleventh, tenth, ninth and eighth days of cycles without result.

CASE 449.—Azoospermia was present. Married six years, the wife was 30. Menstruation, starting at 11, had a thirty day cycle and six day period. The pelvis was normal except for

moderate antelexion and one small myoma (3 cm.). Injection of donor specimens on the twelfth, fourteenth and fifteenth days of cycles failed.

CASE 465.—Azoospermia was present. Married ten years, the wife, 34, had a normal pelvis and normal twenty-eight day cycle. Success followed insemination on the eleventh day of the cycle. There was another success two years later with subsequent miscarriage.

CASE 402.—Oligospermia and poor motility were unimproved by prolonged treatment. Married three years, the wife was 22. Menstruation, starting at 12, had a thirty day cycle and five day period. The pelvis was normal. A donor specimen was injected on the fourteenth day of the cycle, as noted by Papanicolaou, with success.

CASE 343.—Testicular atrophy followed typhoid at puberty. Married six years, the wife was 34. Menstruation, starting at 14, had a twenty-four to twenty-six day cycle and three day period. The pelvis was normal. The basal metabolic rate was -13 . Thyroid therapy was given. A donor specimen was injected twice on the eleventh and finally with success on the eighth day of the cycle.

CASE 411.—The specimen was poor, but one child was born after a three year wait. Married ten years, the wife, 30, had several years' secondary sterility. A trial donor specimen was requested by the family physician because of the wife's mental condition. The pelvis was normal except for viscid cervical secretion. Menstruation, starting at 13, had a thirty day cycle and four day period. A trial on the thirteenth day was without success. The psychologic state improved.

CASE 436.—Azoospermia was present. Married three years, the wife, 26, had a normal pelvis of male type. Menstruation, starting at 16, had a thirty day cycle and seven day period (amenorrhea occurred with change of environment). Trials on the fifteenth and thirteenth days of cycles failed.

INDICATIONS FOR HUSBAND'S SPECIMEN

The indications for injection of the husband's specimen into the uterine cavity for the relief of sterility are relatively rare. Many of the cases in our husband series were unsuitable, but the method was employed (when safe) in response to specific requests which involved ethical and psychologic considerations.

Failure of insemination or the inability of sperm cells to migrate to the cavity of the uterus because of weakness of the specimen or chemical or mechanical obstruction of the cervical canal constitutes the general indication for the procedure. As a matter of fact, however, most of these factors are correctible and such an attack on the problem is more efficient management.

I feel wholly unprepared to fix any standard criteria of semen defects which may justify or contraindicate the procedure. Postcoital studies of sperm migration may be found of value under proper conditions. Infection anywhere in the seminal tract calls for urologic care both as a curative and as a precautionary measure. The significance to be given a high percentage of abnormal cells in the husband's specimen has been found a disturbing problem. As an experimenter, Engle¹⁵ doubts the validity of the microscopic appearance of the cell as an index of its potential importance in abnormal pregnancies, while Williams¹⁶ in a private communication relates evidence in animal reproduction which tends to show a cause-effect relationship. At the present time the physician has little positive evidence to help him in making a decision. Contraindications of a gynecologic nature have been discussed.

15. Engle, Earl, associate professor of anatomy, Columbia University College of Physicians and Surgeons.

16. Williams, W. L., professor, School of Veterinarians, Cornell University.

The successful cases in this group are abstracted as they present, in principle, indications commonly encountered.

CASE OF MRS. S. (Dr. McLane).—The husband was 35. The couple had been married eight years. There were hypospadias and incompetent relations. The wife, 30, had normal menstruation until onset of menorrhagia during the last eighteen months. A large single intramural myoma and patent tubes were noted. Myomectomy was done in February 1935 with a subsequent normal iodized oil picture. Beginning four months later, the husband's specimen was introduced on the eighth, the ninth, and successfully on the fourteenth day of the cycle.

CASE 254.—Semen was subnormal but rated potentially fecundating. The husband's duties precluded treatment. The couple had been married four years. The wife, 31, starting menstruation at 14, had a twenty-eight day cycle and five day period with rare ovulatory spotting. Two years before, the referring gynecologist had operated for adherent ovaries and retroversion fixed by endometriosis. The pelvic condition was satisfactory but spermigration was subnormal. Semen was introduced on the eleventh day of the cycle with success.

CASE 360.—Semen was normal. The couple had been married six years. The wife, 28, was sturdy but sensitive. Occasional colitis was unexplained after careful study. Hypothyroidism (—18) was present. The past history included two years' intermittent glandular therapy and dilation for disabling dysmenorrhea. Menstruation, starting at 13, had a twenty-seven to twenty-nine day cycle and three day period and was scant. There was marked obstruct anteflexion. A stem pessary was placed but found uncomfortable and removed, with relapse. By manipulation of the cervix semen was injected beyond the obstruction, the twelfth day of the cycle, successfully.

CASE 405.—The husband, 32, had deficient semen, transient impotence and hypothyroidism (—24). Definite improvement occurred in a few months. The couple had been married four years. The wife, 28, had marked anteflexion with cervical stenosis obstructing study. Menstruation, starting at 10, had a twenty-eight to thirty-five day cycle and four day period. Dilation was done for dysmenorrhea and diagnosis. Sterility persisted. There was relapse of stenosis. Semen was injected, with angulation reduced, on the eleventh day of the cycle and repeated on the twelfth day, with success.

In the fourteen unsuccessful cases, only two wives presented criteria of normal fertility. The fertility of five husbands was doubtful and none of the cases, in my tentative opinion, offered ideal indications. It is neither easy nor indeed always ethical to deny arbitrarily a trial for patients who come with hopeful expectations. Five couples were content, however, with a single effort.

One patient, after two failures under unfavorable conditions, was returned to her obstetrician with recommendations for care which resulted successfully in two months. Another, from a southern republic where some form of tracheloplasty had been performed, was found after an unsuccessful trial to have a high cervical stenosis barring the finest probe. After study and appropriate attention the patient returned home and reported a normal delivery fourteen months later. Seven women had suffered from marked endocervicitis, which in five instances had been preceded by induced abortions; this was followed, in one instance, with a wish-bone contraceptive pessary. All had been treated by cauterization with fair clinical results. The other two patients, young and intelligent, acknowledged gonorrheal infection. One, after intermittent treatment by various physicians, had submitted to cervical amputation without cure of the discharge. Though the smear was negative contraindication was urged, but the patient, after interviewing her physician, elected to take the risk twice. The other patient had been under expert supervision almost continuously both here and abroad. Excellent results had followed ionization of

the cervix, but imperative operation had left but one tube (now reported patent) and a portion of one ovary on the same side. The attending gynecologist reported vaginal evidence of ovulation on the eleventh day.

Of the five additional failures, two were charged to marked seminal deficiency; in another case seminal defect was concomitant with marked uterine hypoplasia and oligomenorrhea; thickened ovarian tunicae had been noted at previous operation in another, and, finally, one patient gave suggestive signs of pelvic tuberculosis.

Clinical data and impressions have been briefly reviewed, but many of the biologic facts still belong among the imponderables.

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TREATMENT OF MUSCULAR DYSTROPHIES AND ALLIED CONDITIONS

PRELIMINARY REPORT ON USE OF VITAMIN E (WHEAT GERM OIL)

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The last decade has witnessed a renewed interest in the etiology and treatment of the muscular dystrophies and allied conditions. Milhorat, Techner and Thomas's¹ study of creatine metabolism and the results of the administration of aminoacetic acid to dystrophic patients and Meldolesi's² investigation of pancreatic function and his observation of a deficiency of proteolytic and tryptolytic enzymes in muscular dystrophies helped to focus attention on the metabolic aspects of this disorder. That vitamin E deficiency might also play a part in the causation of this condition was suggested by the observation of Blumberg³ of muscular changes, growth retardation and malnutrition in young rats on a vitamin E deficient diet and by the production of paralysis in older rats suffering from avitaminosis E by Ringsted⁴ and Burr, Brown and Moseley.⁵ The dystrophic nature of these muscular changes was pointed out by Goettsch and Pappenheimer⁶ in the guinea pig and rabbit and by Olcott⁷ in the rat.

HUMAN MUSCULAR DYSTROPHY AND VITAMIN E

The possibility that muscular dystrophy in the human being was related to the type of muscular dystrophy observed in the guinea pig and rabbit maintained on a vitamin E deficient diet suggested the investigation of the influence of the addition of vitamin E (wheat germ oil) to the regular diet of a number of patients with muscular dystrophy and muscle atrophy. The patients consisted of a group of children with dystrophies seen

From the Neurological Service of the Elliot Hospital and the Crippled Children's Services of the State of New Hampshire.

Dr. Ezra A. Jones, Medical Director of Crippled Children's Clinics of New Hampshire, and Dr. Mary M. Atchison, of the New Hampshire State Hospital, assisted in this investigation.

1. Milhorat, Techner, Fritz, and Thomas, Karl: Significance of Creatine Metabolism in Muscular Dystrophy and Treatment of This Disorder. *Proc. Soc. Exper. Biol. & Med.* 29: 609 (Feb.) 1932.

2. Meldolesi, G.: *Pollinico* (sez. prat.) 43: 1187 (June 29) 1936.

3. Blumberg, Harold: A Growth Deficiency Disease Curable by Wheat Germ Oil. *J. Biol. Chem.* 108: 227 (Jan.) 1935.

4. Ringsted, Axel: A Preliminary Note on the Appearance of Paresis in Adult Rats Suffering from Chronic Avitaminosis E. *Biochem. J.* 29: 788 (March) 1935.

5. Burr, G. O.; Brown, W. R., and Moseley, R. L.: Paralysis in Old Age in Rats on a Diet Deficient in Vitamin E. *Proc. Soc. Exper. Biol. & Med.* 36: 780 (June) 1937.

6. Goettsch, Marianne, and Pappenheimer, A. M.: Nutritional Muscular Dystrophy in the Guinea Pig and Rabbit. *J. Exper. Med.* 54: 145 (Aug.) 1931.

7. Olcott, H. S., quoted by Mattill, H. A.: Vitamin E. *J. A. M. A.* 110: 1831 (May 28) 1938.

at the Crippled Children's Clinics of the State of New Hampshire. Most of the patients were ambulatory and three were hospitalized for observation for a short time. The group included thirteen patients with muscular dystrophies, one patient with muscular atrophy following anterior poliomyelitis and one patient with advanced muscular atrophy coming on after an attack of neuro-myeloradiculitis. In seven cases the treatment has progressed long enough for one to form definite conclusions as to the results.

METHOD OF TREATMENT AND DOSAGE

The first patient with muscular dystrophy was placed under treatment on April 21, 1939. He was given a proprietary mixture of wheat germ oil in capsule form, one capsule three times daily, each capsule containing 3 minims (0.2 cc.) of the oil, or a total of 9 minims (0.5 cc.) of wheat germ oil a day. Later it was found more expedient and less expensive to administer the oil in milk or with the food instead of in capsules, and the dosage was also increased to 10 minims (0.6 cc.) three times daily. The addition of yeast tablets to the diet and the increase in amino acid intake through daily feedings of gelatin have also brought a more rapid response for the better. At present the oil is administered in a mixture with liquid vitamin B complex, with which it forms an imperfect emulsion, simulating in taste malt and cod liver oil mixtures. Each gram of the oil is standardized to contain 2 Evans-Burr units of vitamin E, and the usual dosage is 4 cc. from three to four times daily, of one to seven parts suspension of wheat germ oil in vitamin B mixture. The patient thus receives about 2 cc. daily of wheat germ oil, together with an ample supply of the vitamin B complex.

The response to treatment is usually prompt. At first improvement in appetite is noted, then disappearance of pain on exertion, followed by greater resistance to fatigue and lastly by replacement of rubbery muscles by normal muscle tissue. Rise in growth and weight was noted in all the younger patients, and also an increase in the sense of well-being. The medication in the present form is usually well tolerated by all patients.

In cases of muscular dystrophy of long standing with contractures and deformities, the concentration of the oil in the mixture has been increased, the patient thus receiving from 4 to 6 cc. of wheat germ oil daily. No unpleasant after-effects have been reported by the patients receiving this stronger mixture.

REPORT OF CASES

The first patient had pseudohypertrophic muscular dystrophy superimposed on Fröhlich's syndrome. He received antuitrin S subcutaneously and wheat germ oil orally. The improvement in the muscular dystrophy was rather spectacular, while response to the antuitrin S was slower but very definite.

CASE 1.—A boy aged 14 years, admitted for observation to the Balch Hospital in Manchester, N. H., through the Crippled Children's Clinic, April 18, 1939, was in good health till two and one-half years before admission, when difficulty in walking developed, and he complained of excessive fatigue, especially on going upstairs. He also had difficulty in getting up from a sitting position and for the last one and one-half years had been completely bed ridden and chair ridden, entirely unable to help himself. He also developed contractures of both legs from being kept tied in a chair in the daytime. His past history was noncontributory. Delivery was normal and he was breast fed as a child. He also had all childhood diseases without

sequelae. As a young boy he tended to be rather obese. No family history of muscular dystrophy was obtained.

The patient was very obese and was unable to move any part of his body except for raising his head and slight movement of his toes. He had a cherubic facial expression, with an obese body and fat mainly distributed over the abdomen, breasts, shoulders, arms, thighs and legs. A large apron of skin and fat over the lower part of the abdomen covered an infantile penis. The testicles were very small. The fingers were tapering, with the proximal phalanges padded with fat. The cranium and cranial nerves were normal. No sensory changes were found. Deep reflexes were not elicited.

The generalized muscular weakness and the displacement of muscles by fat suggested the diagnosis of pseudohypertrophic muscular dystrophy in a patient with Fröhlich's syndrome. In the hospital, at first the patient was unable to feed himself and had to be turned over frequently as he was unable to change his own position. He was placed April 19 on antuitrin S, 200 units every other day, and thyroid extract, one-eighth grain (0.008 Gm.) twice daily. April 21 he was placed on proprietary capsules, containing 3 minims of wheat germ oil each, given three times daily. Three days later the dose was increased to 9 minims of the oil three times a day. Dried yeast tablets were also added to his diet. April 29 he was able to abduct his arms without assistance while in a lying position, some movement appeared in his fingers, and toe movements appeared normal. Both legs still appeared contracted at the knees, with the achilles tendon also contracted on the left.

On May 2 contractures of the legs appeared less marked. He was able to raise his arms and hands by climbing up on his face while in a semisitting position, was able to turn over without assistance, and the finger tips appeared less tapering because of loss of fat around the proximal phalanges. May 6 he was able to abduct his arms; the deltoid contractions were definitely palpable; the finger grip was much stronger; the contractures of the legs nearly disappeared, with the assistance of daily stretching and local massage. Fat around the abdomen also shrank down, and the patient's face appeared less full. As the family moved out of the state, he had to leave the hospital. When last heard from, he continued to gain while taking wheat germ oil and yeast tablets daily.

Case 1 is of especial interest because of the rapid return of strength after the patient began to receive the wheat germ oil. There were no ill effects from the oil and I felt that the addition of yeast tablets to the oil increased its potency.

CASE 2.—A boy aged 2½ years was first seen May 15, 1939, at the Balch Hospital in Manchester, N. H., through the New Hampshire Crippled Children's Clinics. When he first began to walk, at the age of 1 year, his mother noted that he had difficulty in getting up from a sitting position and would rise on himself. Also contractures of the tendons of the toes developed on both feet.

The family history was noncontributory on the paternal side. On the maternal side, two great-uncles were crippled and one died at the age of 14 in England from a crippling condition which probably was a muscular dystrophy. Four maternal uncles had a condition similar to that of the patient, one of them dying from it at the age of 13 and the others being considerably crippled as a result of this infirmity.

When examined, the patient appeared normal in size but definitely overweight. He walked with a waddling gait and there was some lordosis of the lumbar spine. He had considerable difficulty in going upstairs and would get up from a sitting position in a definitely dystrophic manner by rising on himself. The muscles of the shoulder girdle were weak and the gastrocnemii hypertrophied, with a rubbery feeling to them. Deep reflexes were not elicited.

He was placed on wheat germ oil 7 drops three times daily. When seen on July 18 some slight improvement was noted in his getting up from a sitting position, although he still showed considerable weakness of the shoulder girdle muscle as evidenced by his falling through when being lifted by his elbows. He was then placed on a mixture of wheat germ oil and vitamin B complex, 1 ounce of the oil to 7 ounces of vitamin B

complex, in teaspoon doses three times daily. A recheck one month later showed him able to get up without rising on himself, the muscles had lost their rubbery feeling and he could be raised from the floor without falling through. According to the mother he is able to play more and walk up and down stairs without becoming fatigued. He has continued to gain on the same medication and is nearly normal in strength at present.

The next patient is an uncle to patient 2. Two uncles and three brothers had a similar disorder. It has been transmitted through the maternal side, with no female members of the family involved.

CASE 3.—A boy aged 8 years, first examined March 28, 1939, had been having difficulty in getting up from a sitting position and had been stumbling and falling frequently on walking.

His birth was normal. He walked at 11 months. He had anterior poliomyelitis at the age of 1 year, which left the right leg atrophied and weak.

The boy walked with a markedly waddling and unsteady gait. There was advanced atrophy of the muscles of the shoulder girdle, thorax and spine and hypertrophy of the gastrocnemius and soleus on the left with a rubbery feeling to the muscles. The left leg muscles were atrophied as a result of old poliomyelitis. The muscle strength, however, was much greater in the atrophied leg, indicating that possibly the previous attack of poliomyelitis had prevented the dystrophy involving the right leg. There was marked lordosis of the lumbar spine, and both glutei were hypertrophied and replaced by fat. There was generalized absence of deep and superficial reflexes.

Treatment with aminoacetic acid and a high gelatin intake for two months produced no change in his condition. May 4 he was placed on wheat germ oil 10 drops three times daily. He received the medication for three months and a definite gain was noted in his condition, in that he was better able to get up, complained of less pain on walking and exhibited some increase in muscle power. In January 1940 he was placed on a mixture of wheat germ oil and vitamin B complex and since then there has been more increase in muscle strength and the muscles of the legs have appeared less rubbery.

Case 3 is of interest because of the moderate improvement on wheat germ oil alone and marked and more rapid improvement when a mixture of vitamin B complex and wheat germ oil was administered simultaneously. The rare coincidence of muscular dystrophy and anterior poliomyelitis was also somewhat confusing diagnostically, for the paralyzed leg appeared much stronger and entirely unaffected by the dystrophy while the other leg was of much larger circumference but with rubbery and dystrophic musculature. The response to treatment was also rapid and became apparent within a few weeks.

CASE 4.—A boy aged 14 years was seen at the Crippled Children's Clinic at the Baleh Hospital on Aug. 1, 1939. For two years his mother had noted that he was losing strength in his arms and that he was unable to abduct them as well as he could previously. The scapulas would stand away from the chest wall when he tried to lift his arms.

The patient had a somewhat expressionless facies, flattening of the nasolabial folds, atrophy of the buccinators and masseters and marked hypertrophy of the upper and lower lips, which were pendulous and gave the face a grotesque appearance. There was atrophy of the trapezii, rhomboids and serrati, with the scapulas winging away from the chest wall; the latissimus dorsi and pectorals were involved. Elevation of the arms was limited to 100 degrees. On an attempt to raise the arm the entire shoulder girdle moved forward.

The patient's past history was noncontributory. The family history is of significance in that one aunt has the same type of dystrophy as the patient except for absence of lip hypertrophy, but with marked involvement of muscles of the spine and lower extremities.

The patient was placed at first on aminoacetic acid and an increased gelatin intake of 2 pounds (0.9 Kg.) a month, and

also thiamin chloride from 10 to 15 mg. at weekly intervals for six weeks, without change in his condition. On September 15 he was placed on wheat germ oil, 10 minims three times daily. A slight improvement was noted in that the muscles appeared less rubbery, but he was still unable to raise his arms satisfactorily. In December he was changed to a mixture of wheat germ oil and vitamin B complex, and since then his gain has been more rapid. The rhomboids are functioning more adequately now, and winging of the scapulas is less prominent. He is able to abduct his arms better and does not fall through when lifted by his elbows. The face is also fuller and the grotesque facial appearance less apparent. The hypertrophy of the lips, however, has remained unchanged.

The case of Landouzy-Dejerine's type of paralysis just described is of interest because of the rather uncommon association of marked hypertrophy of the lips with atrophy of muscles of the face. The patient responded well to treatment with wheat germ oil and vitamin B, while no improvement was obtained with thiamin chloride and gelatin and less change for the better with wheat germ oil given alone.

CASE 5.—A boy aged 8 years was seen for the first time Jan. 1, 1939, because of stumbling while walking, pain in the lower extremities on going upstairs, and spinal deformity. His birth was normal. His early life was uneventful except for a fall from a crib at the age of 1 year.

The patient is one of three siblings and there is no history of muscular disturbances in any other members of the family.

Physical characteristics included light soft hair and very light complexion, short fingers and spade shaped hands. The gait was unsteady and waddling. He got up from a sitting position by rising on himself and fell through when lifted by his elbows. Generalized muscular atrophy involved muscles of the shoulder girdle, the biceps and the triceps. There was greatly accentuated lumbar lordosis, with protuberant abdomen as a result of weakness of the abdominal muscles. The gluteal muscles were slightly hypertrophied, and so were the gastrocnemii, with a rubbery consistency. The feet were pronated. There was marked angioneurotic edema. No sensory changes were noted. The vibration sense and coordination were normal. Deep and superficial reflexes were present and within normal limits.

A diagnosis of pseudohypertrophic muscular dystrophy was made and the patient was placed on aminoacetic acid orally 15 Gm. daily, increased gelatin intake, thyroid one-eighth grain twice daily, and thiamin chloride 3 mg. daily. There was no improvement in his condition under this medication. In November the patient was placed on a mixture of wheat germ oil and vitamin B complex, a teaspoon three times daily. Within two weeks a definite change for the better was noted. The pain in walking disappeared and the muscles gradually began to lose their rubbery consistency. When rechecked on Jan. 17, 1940, he was able to get up without rising on himself, he could be lifted up by his elbows without falling through, and he was able to walk up and down stairs without complaining of pain. The muscles also had a normal tonus.

Case 5 is of interest because of the failure to improve under large doses of aminoacetic acid and the spectacular change for the better with vitamin E and vitamin B complex therapy.

CASE 6.—A girl aged 14 years, seen at the Manchester Crippled Children's Clinic Sept. 28, 1939, complained of difficulty in walking, weakness and inability to close the hands, wrist drop, muscular weakness and easy fatigability. She was apparently well till May 1939, when there developed a flaccid paralysis of all four extremities, which continued for about a month. She had no sensory changes and no bladder disturbances at the time. She was hospitalized for several months and received large doses of thiamin chloride intravenously. This brought some return of function, and in August she was able to be up and around. At the time of leaving the hospital she had bilateral foot drop and wrist drop, generalized advanced muscular atrophy, especially involving the small muscles of the hands and feet, and weakness of the flexors of the fingers and the shoulder girdle muscles. She also had some slight ankylosis

of the joints of the wrists and ankles. A diagnosis of multiple neuritis or neuromyeloradiculitis was made at the hospital.

The patient was rather emaciated and walked with a pronounced steppage gait. Positive observations included advanced generalized muscular atrophy, bilateral foot drop and wrist drop, and inability to close the hands or abduct the arms. There was considerable tenderness on compression over the muscles of the lower extremities. No definite sensory changes were noted; the vibration sense was reduced to one eighth normal; there was general areflexia.

Fever therapy and vitamin B complex given orally in teaspoon doses three times daily brought improvement in appetite, relieved the muscle tenderness and made walking easier and possibly also influenced muscle strength for the better. There was no appreciable change in the muscular atrophy, however. December 7 she was placed on wheat germ oil and vitamin B mixture in a proportion of 1:8, in teaspoon doses three times daily. She rapidly responded to the change in medication. She felt stronger physically, gained weight and was able to do more without becoming exhausted. Regeneration of the atrophied musculature also became apparent at the end of one month. Two months later the hand grip had nearly returned to normal and the atrophy of the interossei has become much less prominent. The foot drop, the steppage gait and the wrist drop have nearly disappeared.

Case 6 is of interest because of the improvement in the neuritic symptoms on vitamin B complex therapy, but without rapid change for the better in the muscle atrophy. The addition of the wheat germ oil acted apparently as a stimulus to muscle regeneration, with the concomitant return in muscle bulk and strength.

CASE 7.—A girl aged 9 years, first seen on Oct. 25, 1939, complained of difficulty in walking because of weakness of both legs, pain in the lower extremities on exertion, and some muscle atrophy in both thighs. The present condition came on after an attack of anterior poliomyelitis in August 1939, which produced involvement of both lower extremities and necessitated bed rest for a number of weeks.

The patient was slightly obese. She walked with an unsteady gait and was unable to stand up alone unless supported. She was unable to rise from a lying to a sitting position without assistance. There were bilateral atrophy and weakness of the gluteal, iliopsoas and quadriceps muscles. The circumference of the left leg and thigh was 1 inch greater than on the right. The abdominal muscles were weak and flabby. Flexion of the right thigh was 20 degrees and of the left 40 degrees. Leg extension on the thigh was reduced on the right to 30 degrees and on the left to 40 degrees. There was tenderness on slight compression of the muscles of the lower extremities. No sensory changes were noted. There was bilateral absence of the ankle jerks; the knee jerk was not elicited on the right and was very sluggish on the left.

On vitamin B complex the patient showed definite gain in that pain completely disappeared. She was able to walk without support, and extension of the leg and flexion of the thigh also improved. The muscle atrophy, however, had not changed appreciably.

In December she was placed on wheat germ oil and vitamin B mixture. The response was very satisfactory. One month later muscle function had nearly returned to normal, the limp had also greatly improved and the evidence of muscle atrophy was not discernible any longer. As far as can be determined this patient has escaped any serious after-effects from the attack of poliomyelitis which she had in August 1939.

COMMENT

The substance (or substances) found in wheat germ oil, at present designated as vitamin E, is probably akin in nature to the vitamin B complex and is composed of many factors, each having its own sphere of influence on the processes of growth and metabolism. The ability of the organism to utilize what it needs and discard the excess as unnecessary substances explains why so many pathologic conditions are relieved by the admin-

istration of all the factors in a certain vitamin, even if some of the factors are not actually needed. After further analysis of the essential therapeutic properties of the vitamin complex it will be possible to prescribe the individual factor required to cure a certain deficiency state. In the meanwhile, however, till this stage of knowledge is gained, the use of the entire vitamin complex should not be considered superfluous.

The exact part played by vitamin E in the process of proteolysis and its influence on muscle metabolism has not been fully determined yet. Meldolesi's⁸ assumption that insufficiency of proteolytic enzymes in the blood was the cause of muscular dystrophy is given added weight by Shute's⁹ observation of antiproteolytic substances in the blood serum of patients with abruptio placentae and threatened abortion. The fact that both the dystrophies and the states of threatened abortion are relieved by administration of wheat germ oil (vitamin E) would imply the possibility that in both instances the activity of the vitamin is inhibitory to the antiproteolytic substances in the blood serum which by their activity interfere with normal metabolism of protein and its transformation into normal muscle tissue.

Vitamin E probably acts also as a stimulus to cell proliferation in muscle cells in the same manner as it acts on the testes of experimental animals.⁹ The rapid regeneration of atrophied muscle was especially evident in cases 6 and 7, in which considerable muscle atrophy occurred following polyneuritis and anterior poliomyelitis, but with rapid return to normal after administration of vitamin E. In this way it differs from vitamin B, which is primarily concerned with nervous tissue metabolism, and this would explain the slow muscle regeneration which occurred in patients 6 and 7 while they were receiving vitamin B complex alone.

The relationship of the vitamin E complex to the endocrine system offers a field for fruitful investigation. The more than accidental concurrence of muscular dystrophy with Fröhlich's syndrome or other endocrine disturbances brings up the relationship of some constituents of the vitamin E complex to cells in the hypothalamus and the pituitary body controlling gonadal function and fat metabolism. The connection of sterility with muscular dystrophy as seen in dystrophia myotonica assumes new significance in view of Shute's¹⁰ report of treating successfully certain cases of sexual maldevelopment with vitamin E. It would especially deserve a therapeutic trial in dystrophia myotonica because of involvement in such patients of both the muscular system and the gonads. Although muscular dystrophies are more common in the male and most often transmitted through the female, there is a possibility that a number of pathologic disturbances in women which are at present ascribed to other causes are actually the result of vitamin E deficiency.

The administration of wheat germ oil as a prophylactic measure to pregnant mothers of dystrophic families also deserves a clinical trial. In the past birth control or sterilization was the only solution. It should also be given a therapeutic trial in cases of muscle atrophy secondary to damage to the anterior horns of the cord or peripheral nerves, namely multiple neuritis,

8. Shute, Evan: Relation of Deficiency of Vitamin E to Antiproteolytic Factor Found in Serum of Aborting Women, *J. Obst. & Gynec. Brit. Emp.* 43: 74-86 (Feb.) 1936.

9. Mason, K. E.: Differences in Testis Injury and Repair After Vitamin A Deficiency, Vitamin E Deficiency and Inanition, *Am. J. Anat.* 52: 153 (March) 1938.

10. Shute, Evan: Wheat Germ Oil Therapy: Rat Experiments, Lactation, Clinical Uses, "Failures," and Effect on Congenital Anomalies, *Am. J. Obst. & Gynec.* 35: 810-817 (May) 1938.

anterior poliomyelitis with muscle atrophy, amyotrophic lateral sclerosis, and progressive muscular atrophy. The combination with the antineuritic vitamin B complex should increase its therapeutic value in such cases.

SUMMARY AND CONCLUSIONS

Five patients with muscular dystrophy, one patient with muscular atrophy following anterior poliomyelitis, and one patient with muscle atrophy after an attack of multiple neuritis or neuromyeloradiculitis were treated with vitamin E (wheat germ oil).

Definite improvement was obtained in all cases with muscular dystrophy, the improvement being manifested in gain in muscle strength, the disappearance of fatigue and muscle pain on slight exertion, change in muscle texture, and displacement of dystrophic musculature by normally contracting muscle tissue.

In the cases of muscular atrophy following involvement of the nervous system, increase in amount of regeneration of muscle tissue became apparent after the addition of vitamin E (wheat germ oil) to the vitamin B complex the patients were receiving.

The addition of vitamin B complex to vitamin E appeared to increase the therapeutic efficaciousness of the latter.

There is need for further clinical investigation of the potentialities of vitamin E in the treatment of muscular atrophies and dystrophies.

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THE ROLE OF VITAMIN B₁ IN DELIRIUM TREMENS

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Vitamin B₁ has been used in the treatment of peripheral neuritis of alcoholic origin with encouraging results. Prior to the recognition of the role played by vitamins, polyneuritis in the alcohol addict was usually attributed to the direct toxic action of alcohol. Since Shattuck¹ in 1928 first called attention to the occurrence of beriberi in persons with chronic alcoholism, syphilis, carcinoma and chronic debilitating diseases, the term "alcoholic polyneuritis" has gradually discarded in favor of a more inclusive and general conception.

Since the work of Shattuck, Wechsler² and Minot³ and his associates⁴ have pointed out that avitaminosis probably plays an important role in the production of this type of polyneuritis. Goodhart and Jolliffe⁵ reached the conclusions that (a) vitamin B₁ deficiency is the primary cause in the alcohol addict, and (b) improvement in the objective signs of polyneuritis of this form varies directly with the vitamin B₁ intake up to the point of optimum dosage.

It is notoriously true that many chronic alcohol addicts consume an irregular and inadequate diet and

consequently the total intake of vitamin B₁ is insufficient. In addition, Ornsteen⁶ points out that, even though the chronic alcohol addict may ingest a sufficient amount of vitamin B₁ for his caloric intake in the form of food, each calory received in the form of alcohol decreases the total intake of vitamin B₁ and increases the requirements. Thus, regardless of food intake, the chronic alcohol addict has an inadequate vitamin consumption. According to New and Nonofficial Remedies,⁶ 200 international units of vitamin B₁ is needed in the daily requirements. Cowgill⁷ states that according to his formula, on an average, an individual weighing 75 Kg. (154 pounds) needs 280 international units a day. Bowman and his co-workers⁸ have made the valuable suggestions that the factors contributing to delirium tremens are "infections, lowered chloride content of the blood, lowered vitamin reserves, increased lactic acid in the blood and psychogenic factors." Cline and Coleman,⁹ in a review of the etiology of delirium tremens, have given various other contributors' points of view, one stating that delirium tremens has never occurred except when alcohol has been abruptly withdrawn. We are likewise convinced that this is an erroneous assumption because of observations in our two series.

It is our contention that the cause of delirium tremens is essentially a vitamin B₁ deficiency which has been brought on by sudden deficits in the maintenance requirements. Inadequate, irregular and at times total abstinence of diet is practically universal in acute delirium tremens. The person so affected usually does not stop for adequate dietary foods in his alcoholic meanderings after the first twelve hours. This point has been closely checked in each patient's history presented in this series.

Approximately 70 per cent of all patients with acute delirium tremens who were admitted to this service have complained on entrance of nausea and symptoms of gastritis, stating in a universal language "Take it away! The sight of food makes me sick!" Anorexia itself has been established by many other investigators as a result of deprivation of adequate vitamin B₁. Russell¹⁰ has reported three cases in which, after a single subcutaneous injection of 400 international units of crystalline vitamin B₁, the patients' appetites have returned within twenty-four hours "to such an extent that it was difficult to satisfy their desire for food." In our series of cases it was found that the persons receiving intravenous vitamin B₁ had regained the desire to eat within twenty-four hours while those not receiving this treatment took approximately twelve to eighteen hours longer.

Alcohol in small amounts may cause an increase in appetite, but when it is taken in large quantities over a prolonged period the appetite is lost. This lack or loss of appetite results in a relative food loss with attending vitamin B₁ deficiency and later may result in peripheral and central (cerebral) neuronitis.

It is felt that the delirium tremens is an irritative stage of the central (cerebral) neuronitis having its mechanism of function as a disturbance in the relation-

From the Charles V. Chapin Hospital.

The intravenous vitamin B₁ (Betaxin) was furnished by the Research Department of the Winthrop Chemical Company, Inc.

1. Shattuck, G. C.: Relation of Beriberi to Polyneuritis from Other Causes. *Am. J. Trop. Med. S.* 539-543 (Nov.) 1928.

2. Wechsler, I. S.: Etiology of Polyneuritis. *Arch. Neurol. & Psychiat.* 29: 813 (April) 1933.

3. Minot, G. R.; Strauss, M. B., and Cobb, Stanley: Alcoholic Polyneuritis: Dietary Deficiency as a Factor in Its Production. *New England J. Med.* 208: 1244-1249 (June 15) 1933.

4. Goodhart, Robert, and Jolliffe, Norman: Effects of Vitamin B Therapy on the Polyneuritis of Alcohol Addicts. *J. A. M. A.* 110: 414-419 (Feb. 5) 1938.

5. Ornsteen, A. M.: Alcoholic Polyneuritis. *M. Clin. North America* 22: 1801-1811 (Nov.) 1938.

6. New and Nonofficial Remedies, Chicago, American Medical Association, 1938, p. 472.

7. Cowgill, G. R.: Human Requirements for Vitamin B₁. *J. A. M. A.* 111: 1009-1016 (Sept. 10) 1938.

8. Bowman, K. M.; Wortis, Herman, and Keiser, Sylvan: The Treatment of Delirium Tremens. *J. A. M. A.* 112: 1217 (April 1) 1939.

9. Cline, W. B., Jr., and Coleman, J. V.: The Treatment of Delirium Tremens. *J. A. M. A.* 107: 404 (Aug. 8) 1936.

10. Russell, W. R.: Parenteral Administration of Vitamin B₁ in Treatment of Polyneuritis and Other Conditions. *Edinburgh M. J.* 43: 315 (May) 1936.

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ship of a deranged carbohydrate and vitamin B₁ metabolism. This irritative phenomenon can and does occur many times in an alcoholic individual before a permanent neuron destruction occurs, as is later shown in the symptoms and other features of Korsakow's syndrome and in the absent knee jerks of far advanced peripheral neuritis of this origin. It is conversely true that many alcoholic patients, including those having had many bouts of delirium tremens, do not develop Korsakow's syndrome or peripheral neuritis. For this fact an explanation is offered that individual variations in vitamin B₁ consumption and absorption do exist as well as ability to consume alcohol, some of which may not be of the best brand.

In this paper we present ten cases of delirium tremens treated at the Charles V. Chapin Hospital in the past year. All patients were selected by a standard insisting that (a) vivid hallucinations of alcoholic origin must have existed at the time of entry; (b) a history

Summary of Case Reports

Case No.	Hospital Days During Delirium	Total Hospital Days	Weight, Lb.		Gain or Loss	Total Intravenous Mg. of Vitamin B ₁	Total International Units*
			On Admission	On Discharge			
			Alcohol	Vitamin B ₁			
1	3	6	146	154	+ 8	200	67,570
2	3	15	185	191	+ 3	525	175,620
3	3	4	180	182½	+ 2½	150	52,083
4	2	4	168	163	- 5	150	50,008
5	1	6	140	158	+18	100	33,341
Aver. 2.4	7		164.4	169.7	+ 5.4	225	31,400†
			Control Cases				
6	3	5	144½	153	+ 8½	30	3,964‡
7	8	20	125	134	+ 9	..	1,672
8	4	20	152	153	+ 1	..	2,770
9	4	9	150	156	+ 6	..	836
10	2	11§	134	140	+ 6	..	418
Aver. 4.2	13§		141.1	147.2	+ 6.1	6.0	528||

* Includes supplemental vitamin B₁ (yeast and cod liver oil) and excludes diet.
† Designates average number of international units per person per hospital day exclusive of diet.
‡ Includes diet and supplemental B₁.
§ Patient 10 still in the hospital.
|| Designates average number of international units per person per hospital day with diet.

of periodic overindulgence in alcohol and inadequate food consumption was given, and (c) a consumption of alcohol in some form had continued up to the time of hospital entry. Except for hallucinations, acute toxic symptoms, generalized tremor and roughness of the skin, all patients were in satisfactory physical condition, unless it is specifically stated otherwise. Five of them were treated with various amounts of intravenous vitamin B₁ and whisky, while the remaining five were used as controls with symptomatic therapy and with no unusual emphasis on vitamin intake.

The method of treatment used in these five cases was as follows:

1. Four ounces (120 cc.) of bonded rye whisky was given every three hours commencing on admission so that there would be no time during which the patient was not receiving alcohol. The whisky was given to prove that the intake of alcohol was not responsible for the patient's delirium tremens.
2. Synthetic crystalline vitamin B₁ was given intravenously (50 mg. or more) in a period of twenty-four hours.
3. Daily ward diets containing at least 209 international units of vitamin B₁ and supplementary vitamin B₁ in the form of yeast and vitamin capsules were given in some cases to insure adequate vitamin content.

4. Routine nursing care was given, keeping the patient clean, preventing injury, assuring food intake and caring for excretory functions and the forcing of fluids.
5. Each patient was weighed on entry and at discharge.

In the five control cases:

1. No whisky was given.
2. Intravenous vitamin B₁ was not given except to patient 6, who received only 30 mg.
3. The same ward diet was followed with supplementary vitamin B₁ to insure that at least the ordinary daily requirements were met.
4. The identical consideration and nursing care were administered.
5. Each patient was weighed at entry and at discharge.

The five patients who received whisky and intravenous vitamin B₁ showed an almost immediate improvement in the physical and mental status. The generalized dehydration and some roughness of skin, which were noticed on entry, cleared within twenty-four to thirty-six hours after admission. Also the patients were still receiving a minimum of 32 ounces (950 cc.) of whisky every twenty-four hours. The visual hallucinations and fear reactions likewise within thirty-six hours. Restlessness, agitation and generalized motor activity, so frequently seen in delirium tremens, subsided so that continuous baths or chemical restraints were only rarely necessary in these cases.

In the five control cases the duration of time for the symptoms to clear was relatively longer and patient 7 was eight days in a state of acute delirium.

As will be seen in the table, the control patients had an average of 4.2 days before recovery, while the five patients receiving whisky and intravenous vitamin B₁ had an average of 2.4 days. It is interesting to note that a more rapid recovery time is to be expected when concentrated doses of vitamin B₁ are given intravenously. The total number of hospital days of the first series was half that of the control group. It is also observed that the weight gain was more in the control group than in the treated group. The explanation offered for this is that the control group spent considerably more time in the hospital, availing themselves of a continued balanced vitamin amount and total international unit amount in both series that the original group received on an average per person 74.9 times more international units than the daily required. The control group in their diets received adequate daily requirement consisting of 528 international units, which is practically double the minimum amount (154 pounds [70 Kg.] requires 280 international units[†]).

The following report is a brief summary of each of the ten cases under consideration:

REPORT OF CASES

CASE 1.—An unmarried laborer aged 42, weighing 146 pounds (66 Kg.), was admitted to the psychiatric ward for the third time on Dec. 8, 1938. According to the admission paper he was extremely nervous, was profane and suffered delusions of persecution and homicidal tendencies. The cause of his symptoms was alcoholism.

On admission the patient was in good general physical health. There was a strong odor of alcohol on his breath and he was tremulous, being unable to stand without support. A heavy trace of albumin and many white blood cells were found in the urine. The blood nonprotein nitrogen was 50 mg. per hundred cubic centimeters and the blood creatinine was 1.5 mg. per hundred cubic centimeters. The icteric index was 5.

On mental examination he vividly described visual hallucinations, remarking "I got delirious tremens." What do you see? "Pink elephants, brown elephants, polar bears, Rhode Island reds, alligators—if I was to tell you, I would say the whole Barnum and Bailey outfit—every animal he has got." Have you ever been delirious before? "Yes, twice." He was oriented as to time, place and person and recognized several staff members whom he had seen before.

The social history indicated prolonged and excessive indulgence in alcohol of all grades.

Treatment consisted of 4 ounces of whisky every three hours, 25 mg. of vitamin B₁ given intravenously twice a day and a high caloric diet.

On the second hospital day urinalysis was practically negative, and on the fourth day it was completely negative. Several later examinations were also reported as negative. The blood nonprotein nitrogen was 43 mg. and the blood creatinine was normal at the end of the second hospital day.

The night of admission 3 grains (0.2 Gm.) of pentobarbital sodium was given twice because of extreme restlessness and he later had to be awakened to receive the prescribed doses of whisky. The following day he was cooperative but still tremulous and showed marked unsteadiness of gait. He mumbled considerably to himself and perspired freely. General improvement marked the third hospital day. The tremor was lessened and his general well-being was commented on by the patient himself. The whisky was increased to 4 ounces every two hours and discontinued late that same night. The vitamin B₁ was discontinued at the end of the fourth hospital day.

The patient was discharged on the sixth hospital day free from all hallucinations and left with a sense of well-being and with a weight gain of 8 pounds (3.6 Kg.).

CASE 2.—An unmarried factory worker aged 24, weighing 188 pounds (85 Kg.), was admitted for the first time to the psychiatric service because of visual hallucinations and a generalized convulsive attack which took place as he was taking a bath. There was a history of drinking for the past two years but of no previous hallucinations.

On admission the patient was in good general physical condition except for a heavy trace of albumin and rare granular casts in the urine; the temperature was 101.8 F. rectally and the pulse rate 150 with normal blood chemistry.

Mental examination revealed definite ideas of reference and paranoid delusions. "People are hiding in this room. They're trying to do me up. My people have all poisoned themselves." Visual and auditory hallucinations were clearly demonstrated in the patient's actions. He declared emphatically that he could see trees in the room and that lampposts were walking around and spitting at him. He complained bitterly that soldiers were marching up and down in the halls and when passing his room would try to fire on him. On one occasion while looking out of the window the patient suddenly began to cry, saying "there's a little boy out on the lawn with both legs cut off and nobody is around to help him." Generalized excitement was so prominent at that time that it was necessary to isolate the patient completely.

Treatment was instituted immediately after entry. He received the customary 4 ounces of whisky every three hours and 175 mg. of vitamin B₁ intravenously, which was given in split doses, each split dose being given at the height of each of four excitement periods. The next day his temperature was normal but tachycardia with a rate varying from 100 to 140 persisted. The same amount of whisky and vitamin B₁ was given. The patient's general excitement started to subside, and on the third day the temperature and pulse were normal. The urine was completely normal, and at the end of the third day all mental symptoms were nonexistent. This terminated the active treatment.

Of special interest in this case was the fact that no chemical restraint of any kind was used during the acute stage of excitement. Vitamin B₁ was repeated in small doses at the height of the excitement. Physical and mental recovery progressed as rapidly as if sedative drugs had been used in the routine manner.

The patient was discharged on the fifteenth hospital day, weighing 191 pounds (87 Kg.).

CASE 3.—An unmarried Irish-American office worker aged 33, weighing 180 pounds (82 Kg.), was admitted to the psychiatric ward for the first time, the admission paper remarking that the patient had hallucinations and thought men were chasing him and that he was destructive, the present symptoms being due to excessive indulgence in alcohol.

On admission his general physical status was good. The urine and blood were essentially normal. Mentally he showed marked evasiveness when questioned about his imaginations, remarking "They're all right. I told the doctor I had them but I didn't. I told him I had a lot of things. I heard cracks all about myself. I had the 'shakes' all right. The doctor asked me if I saw anything but I told him I hadn't seen anything but I heard a lot of things. People were talking about me; everybody's been ribbing me. They said I was a crook and a murderer." Observation in the ward revealed that he was communicating with some one by Morse code and at other times would gesticulate and stare as if he were carrying on active hallucinatory experiences; however, when asked about these he emphatically denied hearing voices or seeing visions. It was interesting to note that he would repeatedly ask attendants and nurses if they were calling him.

The social history disclosed that he started to drink beer in college because a doctor told him it would relax his nerves. This gradually became a habit with him and at the time of entry he was drinking anything he could obtain. There was no history of previous alcoholic psychoses.

Treatment consisted of the usual 4 ounces of whisky every three hours, 25 mg. of vitamin B₁ intravenously twice a day and the house diet.

Active mental symptoms continued for two days and nights. On the second night he was very resentful and irritable, almost refusing to take the prescribed amount of whisky and answering the nurses' requests with "What the h— do you fellows intend to do to me? Have I got to take this stuff and see things again tonight?" The mental symptoms appeared to clear completely overnight and he was discharged on the fourth hospital day. The whisky and vitamin B₁ had been prescribed for three days and two nights. At the time of discharge there was a weight gain of 2½ pounds (1 Kg.).

CASE 4.—An unmarried Irish-American gas station attendant aged 31, weighing 168 pounds (76 Kg.), was admitted to the psychiatric ward for the first time, the admission paper stating that he had been having hallucinations due to excessive indulgence in alcohol.

Physical examination was essentially negative except for a pulse of 110 and a generalized tremor. The laboratory data were normal. Mentally he was cooperative but complained of seeing rats chewing paper on the floor in his room, men walking on the walls and strange animals walking around his room and going in and out of the window. He was expansive at times and remarked "I saw the World War reenacted today in Fall River. Fifty thousand people were shot down and even the women were fighting." He was confused and disoriented. There was a history of steady drinking for the previous two years.

The treatment of whisky was started and 25 mg. of vitamin B₁ was given intravenously twice a day with the regular house diet. In addition at least 40 ounces (1.2 liters) of fruit juices and six tablets of brewers' yeast were given.

On the second hospital day he was correctly oriented, very cooperative and remarked that he had gotten over the "horrors" and was not seeing anything. The third day he appeared intoxicated and remarked "I had \$2.50 when I entered the hospital and the guys around here must have rolled me for it." In a few hours he had lost this paranoid reference and said no more about it. He was completely oriented in the evening of this same day and all medication was stopped. Although his appetite was excellent the patient had lost 5 pounds (2.3 Kg.). On the following day he was discharged.

CASE 5.—A white man aged 49, divorced, weighing 140 pounds (64 Kg.), was admitted to the psychiatric ward for the first time on Aug. 28, 1939, for the treatment of delirium tremens. On

admission he was markedly restless, impulsive and unpredictable and had to be restrained. He was actively hallucinating and disoriented with rambling, disconnected speech and complained bitterly of bugs crawling over his body and in his ears.

Physical examination revealed nothing remarkable except that both ears were discharging some semipurulent material, a condition which was later diagnosed as chronic nonsuppurative otitis media. Laboratory data were essentially normal.

The social history revealed heavy indulgence in liquor for the previous eight years, the patient at times drinking as much as a quart daily. No previous history of auditory or visual hallucinations was obtained.

Treatment consisted of whisky, 4 ounces every three hours, and 50 mg. of vitamin B₁ given intravenously twice a day. Within twenty-four hours the active mental symptoms had subsided. Whisky and vitamin B₁ were then discontinued after his having received 100 mg. The only complaint registered was pain in the arms.

On the third day all symptoms of an alcoholic nature had subsided completely. The usual tremor and unsteady gait had disappeared and he seemed very grateful for having "come through the horrors." He was discharged on the sixth hospital day and was referred to the ear clinic for treatment of his otitis media. The weight gain was 18 pounds (8 Kg.).

REPORT OF CONTROL CASES

In the control series we have a group of five cases of delirium tremens in which routine symptomatic therapy was given as previously described:

CASE 6.—A white man aged 43, married, weighing 144½ pounds (66 Kg.), had been drinking periodically for years and heavily for four days before entry. On the physical examination hypertension with blood pressure of 160 systolic, 90 diastolic, was noted. The blood Wassermann reaction was reported 4 plus. The spinal fluid Wassermann reaction was negative. The patient manifested typical visual and auditory hallucinations and delusions of persecution. He received 10 mg. of vitamin B₁ intravenously daily, and recovery from his alcoholic illness was noted in three days.

CASE 7.—A man aged 32, unmarried, weighing 125 pounds (57 Kg.), had been drinking for two years and gave a history of delirium tremens once in the past. Physical and laboratory examinations were essentially negative. Mentally he manifested the usual visual and auditory hallucinations, some buzzing in the ears, delusions of homosexuality and marked preoccupation and seclusiveness. Treatment consisted of the ward diet, and strict attention was paid to his seclusiveness. He recovered in eight days. The weight on discharge was 134 pounds (61 Kg.).

CASE 8.—A white man aged 32, unmarried, weighing 152 pounds (69 Kg.), had been drinking for three years. On entrance he had a mild hemolytic streptococcus sore throat with a temperature of 103 F. This persisted for thirty-six hours with a pulse of 130, after which the temperature and pulse became normal. Respirations were labored; his face was flushed, the finger tips cyanotic. These signs persisted for forty-eight hours. The sight of food appeared to distress him and he complained vigorously of a very poor appetite. In addition to the ward diet he received two tablets of brewers' yeast three times a day. He recovered from his delirium tremens in four days. The throat culture was negative in four days and on discharge (on the twentieth day) he weighed 153 pounds (69 Kg.).

CASE 9.—A white man aged 42, divorced, weighing 150 pounds (68 Kg.), gave a history of drinking for twenty years with exacerbations of delirium tremens on many occasions. Physical examination and the usual laboratory tests were negative. He was placed on a ward diet and recovered in four days. The weight at the time of discharge was 156 pounds (71 Kg.).

CASE 10.—A white man aged 53, divorced, weighing 134 pounds (61 Kg.), was admitted for the second time. There was a history of drinking for many years; on the previous admission to this hospital for delirium tremens he had recovered in three days. On this admission he had all the cardinal symp-

toms of delirium tremens and in addition thought he was a rain maker, calling on God to make it rain. His overactivity and symptoms of hypomania made him a nuisance and he was kept in strict isolation. On ward routine he recovered in two days. After eleven days he weighed 140 pounds (64 Kg.).

COMMENT

In cases 1 and 2 the presence of albumin and hyaline casts was noted. Both patients received whisky and intravenous vitamin B₁ treatment. Yet within seventy-two hours the urine was negative for albumin and casts. Rechecks at the time of dismissal substantiated these observations. Apparently when vitamin B₁ is given, whisky in large amounts does not continue to be a kidney irritant. It is felt that the vitamin B₁ acted directly on the kidneys in a therapeutic way along with routine hydration.

It was not possible to measure vitamin B₁ excretions through the kidneys during this study. Although the patients receiving the intravenous vitamin B₁ had been receiving on an average about seventy-five times the daily requirements during their acute illness, an assumption of how much was utilized by the brain and other structures cannot be ventured except to say that at least a small percentage appeared to be of help. The rapidity with which symptoms cleared would substantiate this when the cases are compared.

Our primary purpose in this paper was to prove that alcohol is not the principal factor in the production of delirium tremens and that a deficit of vitamin B₁ content in the brain parenchyma is chiefly responsible. A central (cerebral) neuronitis, an irritative phenomenon, is caused by a perverted carbohydrate and vitamin B₁ relationship, which when treated with adequate vitamin B₁ responds more remarkably (as far as subsidence of symptoms is concerned) than do the peripheral states of polyneuritis of alcoholic origin.

The question may arise from this work as to whether the intravenous vitamin B₁ or the balanced vitamin diet is the essential part of the treatment. This diet was considered adequate and rich in all vitamins and on analysis over a period of a week averaged 209 international units of vitamin B₁ daily in a total of 2,250 Gm. of food.

Alcohol in the presence of large amounts of intravenous vitamin B₁ does not cause a continuation of the symptoms of delirium tremens. A supplementary observation was that, if adequate vitamin B₁ was given, when alcohol was abruptly withdrawn (control cases), eventual recovery would also occur. The fact that recovery from acute symptoms occurred practically twice as fast when intravenous B₁ was given (even in the presence of continued drinking) would indicate an etiology of primary B₁ deficiency in the presence of a deranged carbohydrate metabolism.

Hepatic Lesions.—The liver has been aptly described by Mann as the "commissariat of the body." Its role in maintaining a constant supply of utilizable food materials for the body tissues requires the participation of hepatic activity in every phase of metabolism. The liver is, in addition, the site of many syntheses; it is also an organ of detoxication, secretion and excretion. From these considerations it would be logical to infer that disease of the liver would be revealed quite readily by impairment of some particular function or functions, and indeed it can be shown that hepatic lesions, if severe enough, are accompanied by disorders of glycogen synthesis and storage, fat and amino acid metabolism, secretion and excretion of bile and many other chemical and physical processes.—Bodansky, Meyer, and Bodansky, Oscar: *Biochemistry of Disease*, New York, Macmillan Company, 1940.

WEIL'S DISEASE (LEPTOSPIRA ICTERO-HAEMORRHAGIAE) IN HAWAII

ITS SERUM TREATMENT
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Twenty-eight years after the description by Weil in 1886 of a disease characterized by the four cardinal symptoms fever, muscle pains, hemorrhage and jaundice,¹ Inada and Ido in 1914 demonstrated a spirochete as the causative organism.² They also succeeded in curing this disease by serum therapy.³

According to Inada and Ido,³ as soon as the condition has been diagnostically determined the serum treatment should be applied in order to obtain the best results, and a higher rate of recovery accompanies early serum injections. When the serum treatment is given within five days of the disease, recovery is almost certain. Within two to three hours after the treatment

tion and especially muscular pain along his lower limbs which confined him to bed, as he was unable to walk.

Just seven days before the onset of this disease, in order to get some bait for fishing, he went into a creek and got his entire body wet. At that time he had a small wound on his left heel. His family history and past history were non-contributory except for a case of bronchial asthma in his early years.

Physical Examination.—On the fifth day of the disease, when he was admitted, the patient was muscular and possessed a well nourished constitution, yet he lay in bed passively. He suffered pain in moving the eyeballs. The conjunctival vessels were all intensively injected, and slight yellowish changes were seen on the bulbar conjunctiva. His skin was yellow and he was damp with perspiration. There were no exanthems or edema, but a few swellings caused by lymph glands appeared in the left inguinal region. The temperature was 98 F.; the pulse showed a frequency of from 120 to 130 per minute and was feeble but relatively larger, with an arrhythmia. The apex beat of the heart could not be perceived. By percussion the area of cardiac dullness was found to be enlarged a little to the left side, and on auscultation the heart sounds were very weak, murmuring and arrhythmic and showed embryocardia. The

Summary of *Leptospira Icterohaemorrhagiae* Cases Treated

Cases	Date of Admission to Hospital	Sex	Age	Fever at Onset, F.	Pulse Rate at Onset	Muscular Pain	Con-junctival Hyper-emia	Jaundice, Date of Appearance	Hemor-rhage, Date of Onset	Leptospira Confirmed Microscopically and Biologically	Serum, Amount and Date of Injection	Outcome
1	Oct. 31, 1927	♂	47	102	120 p. m.	+	++	++	+	+	0	Died
2	Oct. 10, 1930	♂	43	103	130 p. m.	+	++	++	+	+	40 cc. 3d	Cured
3	May 19, 1928	♂	53	104	130 p. m.	+	++	++	+	+	0 7th	Died
4	Dec. 6, 1928	♂	29	104	130 p. m.	+	++	++	+	+	40 cc. 4th	Cured
5	July 10, 1931	♂	41	103	136 p. m.	+	++	++	+	+	40 cc. 4th	Cured
6	April 17, 1931	♂	46	104	130 p. m.	+	++	++	+	+	40 cc. 3d	Cured
7	Oct. 31, 1931	♂	48	103	124 p. m.	+	++	++	+	+	40 cc. 9th	Died
8	Sept. 30, 1930	♂	60	102.3	136 p. m.	+	++	++	+	0	40 cc. 6th	Died
9	Oct. 29, 1920	♂	35	102.5	130 p. m.	+	++	+	+	0	0	Recovered
10	June 10, 1932	♂	31	101	.....	+	+	+	+	+	40 cc. 3d	Cured
11	Sept. 11, 1932	♂	28	103.2	.....	+	+	+	+	+	40 cc. 4th	Cured
12	Oct. 13, 1932	♂	61	102.6	.....	+	+	+	+	+	20 cc. 4th	Cured

Patients 7 and 8 did not recover after serum injection, owing to its lateness.³

with 20 cc. of serum, the causal organism found in the blood almost vanishes.

During the past two decades, numerous cases have been reported in European and Japanese medical journals as mentioned,⁴ but I have not been able to find reports on this serum treatment in Hawaii. Through one of my friends, I was given a chance to use the serum for *Leptospira icterohaemorrhagiae* in treating the disease here. This has encouraged me to report my cases.

The two following cases are examples of the disease with and without the serum treatment; ten other cases are also listed in the accompanying table.

CASE 1.—History.—T. O., a fisherman aged 47, was admitted to the Japanese Hospital in Honolulu Oct. 31, 1927. There had been no particular sign of trouble until early in the morning of October 27, when the patient suddenly suffered from a chill with headache, dizziness, anorexia, fever, prostra-

second pulmonic sound was strongly accentuated. The liver could be palpated two fingerbreadths below the costal margin in the median line and was distinctly tender, intensive pain being elicited by pressure. The spleen was also palpable yet not so tender. Albumin, diazo and bile reactions in the urine were positive, but Fehling, Wassermann, Kahn and Widal reactions were all negative. Leukocytes numbered 9,260, with polymorphonuclears 92 per cent, lymphocytes 2 per cent and myelocytes 6 per cent; erythrocytes numbered 32,000,000 and the hemoglobin content was 80 per cent.

Course.—On October 31, the fifth day of the disease, the patient's temperature was about 100 F., but he complained continuously of headache and prostration in spite of the subcutaneous injection of 1,000 cc. of physiologic solution of sodium chloride and all kinds of heart tonics.

A smear seen under the microscope proved that *Leptospira icterohaemorrhagiae* was the causative organism. Therefore 2 cc. each of the patient's blood was inoculated into the peritoneal cavities of three guinea pigs. On the sixth day of the disease, jaundice seemed to increase. Gradually drowsiness and anuria were added to the disturbances mentioned. On the seventh day the patient's temperature ranged between 99 and 100 F. From his admission until this day the pulse rate ranged from 120 to 150. The intensity of jaundice increased greatly. On smears no spirochetes could be perceived. On the eighth day the temperature became subnormal and jaundice became

Prof. H. Takeya and R. Kaneko of the Kyushu Imperial University reviewed this report.
1. Reiter: *Ztschr. f. klin. Med.* 88: 489.
2. Inada, R., and Ido, Y.: *Ikaishi* No. 1436, January 1922; *Hokuetsu, Igakkai* vol. 32, No. 6, December 1917.
3. Inada, R., and Ido, Y.: *Ztschr. f. Immunitätsforsch. u. exper. Therap. Orig.* vol. 31, part 3, 1921; *Hokuetsu Igakkai*, 1917.
4. Reiter,¹ Inada and Ido, footnotes 2 and 3.

more intense. Petechiae on the costoabdominal region and on the lower limbs were distinctly seen. By microscopic examination the causative organism could not be found. On the ninth day, diarrhea with profuse hemorrhage was observed several times. Next day the patient's condition was very critical; petechiae (i. e. hemorrhage) increased gradually and became severe. On the twelfth day the patient died under toxic conditions. All the clinical and microscopic evidence confirmed the diagnosis of spirochetosis icterohaemorrhagica.

Guinea Pig Inoculation.—As has been mentioned, on the fifth day of the disease, after it had been proved microscopically that a spirochete was the cause, 2 cc. each of the patient's blood was inoculated intraperitoneally into three guinea pigs.

Guinea Pig 1: On the tenth day after inoculation, the fourth day of the disease, the guinea pig became intensely yellow. The skin was also deeply tinged and the animal seemed very sick. It died on the fifth day of the disease. Autopsy was performed. *Leptospira icterohaemorrhagiae* was found in the emulsions of the liver and the spleen.

Guinea Pig 2: On the eleventh day after inoculation, the fifth day of the disease, the animal showed jaundice and anuria. On the following day it died, and autopsy was performed. The results were the same as for guinea pig 1.

Guinea Pig 3: Results similar to those for guinea pigs 1 and 2 were found. However, the causal organisms could not be observed in the blood, urine or tissues.

Two cc. of blood from the heart of guinea pig 1 was inoculated into guinea pig 4 for further study, but the results were similar to those for guinea pigs 1, 2 and 3.

CASE 2.—History.—A gardener aged 43 entered the Japanese Hospital in Honolulu on Oct. 10, 1928. His family history and past history were not remarkable, but he had always been well. At midnight of October 8 the patient was seized with a rigor, and his temperature rose suddenly to 103 F. He suffered from lassitude, headache and gastric distress such as nausea and vomiting, with accompanying dizziness, prostration and intensive gripping pain in the back and especially in the calf muscles. On the first examination the appearance of jaundice and also marked nervous manifestations were observed. He lay in bed passively.

Here too it was interesting to note that six days before the onset of this disease the patient went into the creek water and stayed there for several hours in order to fish, but according to him there had been no visible wound on his body.

Physical Examination on Admission.—The patient was admitted on the fifth day of the disease after a physical examination which showed that he was poorly nourished. He lay in bed passively. Incidentally, he seemed comparatively young for his age. He complained of intense pain in moving the eyeballs, and the conjunctival vessels were all intensely injected. The scleras showed a fairly yellow discoloration, and possibly there was a slight yellowish tint to the skin. There were no exanthems or edema, but in both inguinal regions a few swollen lymph glands were easily recognized. The liver and the spleen were enlarged and palpable, though not tender. A tendency to hemorrhage as shown by epistaxis and petechial eruptions was seen. The temperature was 102 F. and the pulse rate of over 130 per minute was of the genuine febrile type. The heart conditions also were not quite normal, the second pulmonic tone being strongly accentuated.

The albumin and diazo as well as bile reactions in the urine were positive to a considerable degree, but the Fehling, Wassermann, Kahn and Widal reactions were all negative. Leukocytes numbered 9,600. Two cc. of the patient's blood was inoculated into the peritoneal cavity of each of three guinea pigs. All the pigs afterward gave positive evidence of the routine causative organisms, as described in the report of case 1. Thus at the time of entrance to the hospital the evidence pointing to Weil's disease was very clear, and I had little doubt of the diagnosis.

In accordance with the diagnosis, 40 cc. of Inada and Ido's serum of *Leptospira icterohaemorrhagiae* was intravascularly injected at intervals of twenty-four hours, strictly according to their instructions; i. e., 1 cc. of this serum was injected three hours before the second 2 cc. injection; this serum was warmed

to 37 C.; injections were administered as slowly as possible—in not less than five minutes. The injection of this serum produced brilliant effects. Several minutes after the first injection the patient was seized with a chill lasting for half an hour, and about six hours later his general improvement was striking. On the next day the muscular pains greatly diminished and the marked nervous manifestations subsided almost completely. Jaundice and petechial eruptions also disappeared gradually. Thus day by day he recovered more rapidly, convalescence lasting two weeks without the usual prostration.

The other ten cases showed great similarity in the clinical conditions at the inception of the illness. Therefore, to avoid repetition, I have summarized all the cases which I treated in the accompanying table.

SUMMARY

1. Twelve cases of hemorrhagic spirochetel jaundice were observed in Hawaii, the diagnosis being confirmed clinically in two cases and bacteriologically in nine cases. The disease was proved to be identical with that occurring in Japan by both clinical and bacteriologic criteria.

2. Nine of the twelve patients were inoculated with the *Leptospira icterohaemorrhagiae* serum of Inada and Ido; seven of the inoculated patients were cured and two died. Death was due to the lateness of the serum injection.

3. Three of the patients did not receive the serum; of these two died but one recovered.

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Clinical Notes, Suggestions and New Instruments

ACUTE POLYRADICULONEURITIS (GUILLAIN-BARRÉ SYNDROME)

A CLINICAL REPORT OF TWO CASES

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Our purpose in this communication is to call attention to the fact that in order to make an accurate diagnosis of the Guillain-Barré syndrome it may be necessary to do more than one spinal puncture to determine the presence of the characteristic albuminocytologic dissociation. We are reporting two such cases.

As far as we could determine, none of the contributors (Guillain,¹ Bassoe,² Gilpin, Moersch and Kernohan,³ Van Bogaert and his co-workers,⁴ Gillespie and Field⁵ and many others) to this syndrome have emphasized or even mentioned such a fact. Guillain⁶ has insisted that this albuminocytologic dissociation be absolutely present before making a diagnosis of this disease. In 1916 he, in collaboration with Barré and Strohl, called attention to a clinical syndrome "characterized by motor disturbances, loss of tendon jerks with preservation of cutaneous reflexes, paresthesias with slight disturbance of objective

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1. Guillain, Georges; Barré, J. A., and Strohl, A.: *Bull. et mém. Soc. méd. d. hôp. de Paris* 40: 1462 (Oct. 13) 1916.

2. Bassoe, Peter: *Guillain-Barré Syndrome and Related Conditions*. Arch. Path. 26: 289 (July) 1938.

3. Gilpin, S. F.; Moersch, F. P., and Kernohan, J. W.: *Polyneuritis: Clinical and Pathological Study of Specific Group of Cases Frequently Referred to as Instances of Neuritis*. Arch. Neurol. & Psychiat. 35: 937 (May) 1936.

4. Van Bogaert, Ludo; Philips, F.; Radermecker, J.; Radermecker, M. A., and Verschraegen, T.: *Polyradiculoneuritis*. J. belge de neur. et de psychiat. 38: 181 (March) 1938.

5. Gillespie, J. B., and Field, Elsie H.: *Acute Polyneuritis of Uncertain Origin*. J. Pediat. 14: 363 (March) 1939.

6. Guillain, Georges: *Radiculoneuritis with Acellular Hyperalbuminosis of Cerebrospinal Fluid*. Arch. Neurol. & Psychiat. 30: 975 (Nov.) 1936.

sensibility, tenderness on pressure of the muscles, little change in the electrical reactions of the nerves or muscles and noteworthy hyperalbuminosis of the cerebrospinal fluid in the absence of cytologic reaction." Madigan and Marietta⁷ in 1938 stated that the increased total protein may be transitory or absent. They report a case in which the first spinal puncture showed 18 mg. of protein while the second showed 122 mg. of protein in the spinal fluid.

CASE 1.—Motor weakness, multiple cranial nerve palsies, absent deep reflexes, paresthesias, muscle tenderness, partial reaction of degeneration with normal spinal fluid. With progression of symptoms in the hospital a second spinal puncture revealed an albuminocytologic dissociation.

C. B., a man aged 46, white, a laborer, admitted to the hospital in Dr. Stone's service on March 16, 1940, stated that he had had a cold for two weeks, starting with abdominal pain and developing into a cough, but had otherwise been well until March 14, when on getting up in the morning he felt dizzy, his legs gave way and he fell to the floor. Later in the day his hands felt numb and the following day he had difficulty in swallowing food and drink with occasional regurgitation through his nose, and a nasal speech. His temperature on admission was 98.2 F. and blood pressure 120 systolic, 80 diastolic. On physical examination there were no gross abnormalities. The pupils were round and equal and reacted to light and in accommodation. The palate and uvula rose poorly in the midline. All deep reflexes except the radial and ulnar were bilaterally absent and the right abdominal reflex was not elicited. There was marked ataxia in finger to nose and heel to knee tests bilaterally, more so on the left. Sensation was intact except for vibration sense, which was absent bilaterally below the clavicles. The spinal fluid was clear, colorless and under pressure of 10 mm. of mercury with no block; the Pandy test was negative; there were 10 cells per cubic millimeter, 46 mg. of protein per cubic millimeter, both blood and spinal fluid Wassermann reactions were negative, as were routine blood and urine analyses, and a tentative diagnosis of encephalomyelitis was made.

On March 18 there was no movement of the palate or uvula; the tongue deviated to the left; there was a left ptosis and slight limitation in the left lateral gaze. The patient complained of weakness and numbness "all over." The blood nonprotein nitrogen at this time was 40. The following day muscle tenderness in the calves was marked, the knee and ankle reflexes were absent, there was a questionable left Babinski reflex, absent abdominal reflexes and an absent right cremasteric. Hypalgnesia was noted up to the level of the fifth thoracic segment bilaterally. There was a left peripheral facial weakness and both lids were ptosed. The only extra-ocular movement elicited was a slight lateral movement of the left eye (which was not present the next day). The pupils reacted sluggishly to light but well to accommodation. There was weakness in both sternocleidomastoids. A course of sulfanilamide was instituted. On March 21 the condition was much the same, save for a bilateral peripheral facial paralysis and slight movement of the left palate. The spinal fluid was clear and colorless and under normal pressure; the Pandy test was markedly positive; there were 2 cells per cubic millimeter and 375 mg. of protein per cubic millimeter.

Sulfanilamide was discontinued on March 25 as the patient was becoming jaundiced and vomited frequently. He complained less of pain in his extremities and could speak and swallow more easily. Two days later, despite the use of Buller shields and frequent irrigations, he developed a small corneal ulcer. At this time he still had bilateral ptosis and facial paralysis but showed a return of motion of 5 degrees in all fields of his right eye.

On March 29 he could close his eyes, the palate rose well in the midline and the tongue protruded in the midline. The ataxia had improved and he could feed himself. On April 2 his facial paralysis had practically disappeared and his general condition was much improved but the reflexes and vibration

sensation were still absent. On April 10 a third spinal puncture revealed 300 mg. of protein per cubic millimeter, a four plus Pandy test and 10 cells. Electrical examination showed a diminished reaction to faradic current (partial reaction of degeneration).

CASE 2.—Motor weakness, diminished tendon reflexes, paresthesias, muscle tenderness, no change in electrical reaction. The objective signs on entrance were minimal, particularly in comparison with the marked subjective complaints and in the presence of an essentially normal spinal fluid; attention was at first directed away from an organic basis for her complaints. With the appearance of a peripheral facial paralysis, spinal puncture was repeated and albuminocytologic dissociation found.

A. B., a woman aged 42, white, a housewife, admitted to the hospital in the service of Dr. L. W. Avery on Feb. 22, 1940, stated that on February 18 she first noticed that her legs were becoming progressively weaker and that on the following day she fell on the stairs and had to be assisted to bed. At that time she realized that her arms were weak and she developed numbness of all her extremities. She remained in bed but continued to lose strength until on entrance to the hospital she could not move her legs at all and had markedly weakened grasp with both hands. Her past history was negative save for an attack of weakness of the legs following a fall on the stairs twenty-seven years before which gradually improved over a period of three months. She stated that she had not had a cold. Her temperature on admission was 99.6 F. and blood pressure 128 systolic, 76 diastolic. Physical examination disclosed no gross abnormalities. The pupils were round and equal and reacted to light and in accommodation. Muscle power was weakened in all groups. The deep reflexes were present and normal and there were no pathologic reflexes elicited. The abdominal reflexes were present on the left and absent on the right. Sensation in all modalities was unimpaired. The spinal fluid was clear and under pressure of 13 mm. of mercury with no block; the Pandy test was negative; there were 3 cells per cubic millimeter, 67 mg. of protein per cubic millimeter and both blood and spinal fluid Wassermann reactions were negative. The blood and urine were normal and analysis of the hair and nails for arsenic was negative. The patient's face showed concern and apprehension and she told without much urging a long story of family and economic difficulties. In the ward she continually complained of pains throughout her body, chiefly in her extremities, cried a great deal and insisted without foundation that the nurses, doctors and attendants were discriminating against her. The diagnosis was deferred at this time.

On February 26 she complained of inability to swallow solid food but examination revealed no signs of bulbar paralysis. On February 28 it was noted that her left knee jerk was absent and that the deep reflexes of the upper extremity were greatly diminished. There was no muscle tenderness or sensory disturbances and the electrical reactions were normal. On March 4 she developed a left peripheral facial paralysis and complained of increased muscle soreness especially at night. The spinal fluid on March 5 was clear and under normal pressure. The Pandy test was 2 plus; there were 6 cells per cubic millimeter and the protein 375 mg. per cubic millimeter. At that time there was reported slight movement of both arms. By March 9 she could move her upper extremities well. On March 17 she fed herself for the first time and a marked change was noted in her attitude. She became quite cheerful and optimistic. By March 29 her facial paralysis had practically disappeared and the next day she was able to walk. Examination on April 2 was practically negative. The deep reflexes were bilaterally brisk and equal. On April 17 a third spinal puncture revealed 6 cells, a one plus Pandy test and 90 mg. of protein.

COMMENT

Owing to the fact that development of the albuminocytologic dissociation occurred late in the disease in our two cases it was not possible to diagnose them accurately at first as of the Guillain-Barré type. Since in this syndrome the prognosis is very favorable one readily appreciates the fact that the finding

⁷ Madigan, P. S., and Marietta, S. U.: Polyradiculoneuritis with Report of Case, *Ann. Int. Med.* 12: 819 (Nov.) 1938.

of the albuminocytologic dissociation is of utmost importance not only in making a correct diagnosis but also in giving a true prognosis.

SUMMARY

In two cases of Guillain-Barré syndrome the albuminocytologic dissociation was found after the second spinal puncture during the course of the illness and not at the onset. Albuminocytologic dissociation may be a late manifestation of this syndrome.

30 North Michigan Avenue.

INTRAVENOUS INJECTION OF PARALDEHYDE FOR THE CONTROL OF CONVULSIONS

I. S. WECHSLER, M.D., NEW YORK

Sometime in 1919, during the early days of epidemic encephalitis, I had under my care one of the most violent hyperkinetic types of the disease, with extreme restlessness, toxic delirium and intractable insomnia. The course was punctuated by repeated clonic and tonic spasms of brief duration. The patient, a young man in the early twenties, was so violent in his restlessness that he had to be restrained almost all the time and required the constant attendance of two nurses by day and night. He was given all sorts of sedatives and hypnotics in large doses without effect. The barbiturates, if anything, only increased the restlessness. Paraldehyde in large doses by rectum had a transient effect, never lasting for more than fifteen minutes at a time. Spinal tap and drainage of fluid did not seem to influence the course. In sheer desperation I tried the intravenous injection of 1 cc. of paraldehyde. This was done with some trepidation since I did not know what effect the ordinary paraldehyde solution would have on the blood; I knew that the solution was sterile, so that there was no fear of infection. By the time the last drop was injected, literally before the needle was withdrawn, the patient quieted down and promptly fell asleep. For the first time in two weeks he slept about two hours. The injection was then repeated, with similar results. This was followed by the administration of 1 cc. of the drug at varying intervals during the twenty-four hours, which was kept up for several days. The patient gradually improved and ultimately recovered, fortunately without any sequelae.

Since then I have used the injection of 1 cc. of paraldehyde for convulsions of prolonged duration which did not respond to other treatment and in cases of status epilepticus. In most instances the convulsions ceased promptly; in some the effect was neither prompt nor lasting, and even a repetition of the injection failed, on rare occasions, to have the desired result. The types of cases varied. Some attacks were generalized seizures which came in rapid succession in patients who were commonly regarded as epileptic. In such cases the effect of the paraldehyde was almost universally good. When definite organic disease of the brain could be demonstrated, for example tumor, subdural hematoma or dementia paralytica, the convulsions did not always cease with the injection of 1 cc. of the drug. A second injection sometimes succeeded after the first failed. More rarely the paraldehyde was altogether ineffective.

While the effect of paraldehyde in excitement and delirium, particularly of the alcoholic variety, is well known, its intravenous injection is not commonly utilized nor is adequate mention made of it in the literature. Sollmann's Pharmacology does not mention the intravenous use of paraldehyde at all and does not even mention convulsions. Cushny's Pharmacology fails to say a word about intravenous use, tells nothing about intravenous injections and does not refer to convulsions. The Textbook of Medical Treatment (Edinburgh, 1939), by various authors, advises paraldehyde by rectum or mouth for convulsions but does not mention the intravenous use. Bastedo's Materia Medica speaks of its use in eclampsia and other "convulsive conditions." He recommends one half ounce doses

by mouth. He adds that in "2 to 5 per cent solution in physiological saline it is also employed intravenously as a general anesthetic for short operations." It is evident that the intravenous injection of paraldehyde is not generally known, though I have used it for twenty years¹ and know of its use by others. This therapeutic procedure is not novel, but it seems to be startlingly so to the uninitiated.

This note is therefore made for the purpose of calling attention to a harmless therapeutic measure which in many instances is specifically effective when other drugs fail to stop convulsions. Repeated seizures always are terrifying to the beholder and frequently resist general medicinal attempts to control them. Status epilepticus, it is well known, may end fatally. The paraldehyde injection is so simple that it should be used in all cases of extremely prolonged or rapidly recurring convulsions. It is not indicated in the simple fit of comparatively brief duration. That generally ceases by itself and needs nothing to control it. The intravenous injection may be used with impunity in states of excitement and delirium with hyperkinesia and insomnia.

70 East Eighty-Third Street.

TETANUS: SECOND ATTACK WITH RECOVERY
REPORT OF CASE AND REVIEW OF LITERATURE

HYMAN I. VENER, M.D., C.P.H., AND ALBERT G. BOWER, M.D.
LOS ANGELES

This is the report of a case in which a second attack of tetanus occurred approximately three and one-half years after a boy had been successfully treated and had completely recovered from one attack.

The method of management as instituted during the first attack has been described¹ and since 1935 has proved successful in 100 cases of tetanus, with a gross fatality rate of 29 per cent. If the deaths occurring within the first twenty-four hours after admission to the hospital are excluded, a net fatality rate of approximately 19 per cent has been achieved, one of the lowest in medical literature.

FIRST ADMISSION²

History.—J. Z., a Mexican boy aged 5 years, admitted to the communicable disease unit of the county hospital on Jan. 24, 1936, had been ill two days with inability to open his mouth, irritability and, on the least noise, a stiffness and jerking of the body, legs and back. The parents recalled lazily that the patient had stepped on a nail.

Physical Examination.—The rectal temperature was 98.8 F., the pulse rate 110 and the respiratory rate 24 per minute. Trismus, rigid neck, rigid abdomen, spasticity of all extremities, hyperactive reflexes and several infected lesions on the plantar surface of the right foot were found.

Laboratory Data.—Spinal puncture revealed a clear fluid under slightly increased pressure with a normal cell count and with sugar 52 mg. and chlorides 590 mg. per hundred cubic centimeters of fluid. Subsequent cultures taken of excised tissue from the infected lesions of the right foot yielded *Staphylococcus aureus* and *Bacillus coli* but no anaerobic organisms. Microscopic examination of the tissue revealed chronic inflammation and a point of perforation by a foreign body.

Treatment.—As outlined previously, in the first twenty-four hours of admission 160,000 units of tetanus antitoxin was administered. The dosage was distributed intramuscularly as follows: 20,000 units locally about the wound and 40,000 units encircling the right thigh, the latter procedure being repeated in eighteen hours. Cisternal puncture was done and 20,000 units admin-

1. Wechsler, I. S.: Textbook of Clinical Neurology, ed. 4, Philadelphia, W. B. Saunders Company, 1939, p. 653.

From the Communicable Disease Division, Los Angeles County Hospital, the Bureau of Health, Los Angeles City Health Department, and the University of California School of Medicine.

1. Vener, H. I.: *Tetanus Treatment*, Preliminary Report, California & West. Med. J. 41:111 (1938).

2. Supervised management was conducted by Dr. Edgar L. Mariette, resident physician, and Drs. Selda Anthony and Francis L. Phillips, interns.

istered about three hours after the initial intramuscular injection of serum. This produced a severe febrile reaction; therefore the intravenous injection of antitoxin was not given until twelve hours had elapsed, at which time 40,000 units of antitoxin diluted in physiologic solution of sodium chloride was used. Following the intravenous procedure a severe serum reaction ensued; consequently the usual second dose of 20,000 units intravenously was not given. Methenamine 15 grains (1 Gm.), 10 cc. of a 10 per cent solution, was given intravenously about ten hours after each intramuscular injection and two hours after the intravenous injection of antitoxin. Sedation for the control of spasms and convulsions was obtained as needed by chloral hydrate and calcium bromide by retention enemas. The lesion on the foot was completely eradicated and subsequently treated with hot potassium permanganate compresses until granulation and healing occurred.

Clinical Course.—Serum sickness developed on the sixth day but responded readily to treatment. The temperature became normal on the eighth day. The disappearance of trismus, rigid neck and rigid abdomen was slow and necessitated a longer stay in the hospital than usual. The patient was discharged from the hospital as cured on the thirty-first day.

SECOND ADMISSION³

History.—The same boy at approximately 9 years of age was readmitted to the service on July 5, 1939, with a history of drowsiness for five days, of pains in the chest, of restlessness, of having vomited and of having bitten his tongue repeatedly. His father observed the boy's drowsiness and when he attempted to arouse him the child would become restless, roll in bed, bite his tongue and return to his drowsy state. About a week previous to the illness, the patient had been struck on the right shoulder with a dirty stick, but about two weeks before that he had also cut his right foot on some glass. Following his discharge from the hospital about three and one-half years before, asthma had developed, particularly when the child was playing around horses.

Physical Examination.—The rectal temperature was 100 F., the pulse rate 92 and the respiratory rate 20 per minute. Marked trismus was present, the patient being able to open his mouth only one-fourth inch. The tongue was bleeding and showed evidence of repeated bites. There was marked risus sardonius. The sternocleidomastoid muscles were tense and spastic. The neck, abdominal and back muscles were all very rigid. Moist musical rales were heard in the lungs, and hyperactive reflexes and frequent convulsions were present. Crusted, semicrusted abrasions and lacerations were found about the right shoulder, the right middle finger and the right heel. The lesion on the heel was considered the most probable focus.

Laboratory Data.—Culture reports of excised tissues from the shoulder, finger and heel lesions were all negative for anaerobic organisms. Electrocardiograms one week after admission showed a sinus tachycardia and an inverted T in lead 4F, in keeping with the age of the patient. Examination during the second week disclosed a primary sinus arrhythmia and a premature ventricular contraction, as revealed by a left axis deviation, a polyphasic T in lead 4F and one premature contraction of ventricular origin. Roentgenograms taken of the dorsal vertebrae on dismissal showed no evidence of compression fracture.

Treatment.—Owing to the previous tetanus therapy, during which course serum sickness developed, followed later by the asthmatic attacks when around horses, and because of a current strongly positive cutaneous reaction to serum, the method of management was modified and he was given 100,000 units of antitoxin intramuscularly, administered as follows: 20,000 units about the right shoulder region, 10,000 units about the base of the right middle finger, 20,000 units about the lesion on the right heel and 50,000 units encircling the right thigh. An hour later, under a brief general anesthetic, all described lesions were completely eradicated, due caution being taken to stay within the zones injected. Ten hours later, methenamine 15 grains, 10 cc. of a 10 per cent solution, was given intravenously.

3. Supervised management of the case was conducted by Dr. Ralph Hanna, resident physician, and Dr. Lorin C. Swift, intern.

Sixteen hours after the first injection of serum another dose of 100,000 units of antitoxin was administered, divided and distributed as before and followed in ten hours by another intravenous injection of 15 grains of methenamine. Thus the patient received a total of 200,000 units of antitoxin, all intramuscularly, within eighteen hours after hospitalization. There were no untoward effects. Spasms and convulsions were controlled with chloral hydrate and sodium bromide by retention enemas as needed.

Clinical Course.—Convulsions persisted during the first twenty-four hours after admission. A profuse purulent nasal discharge associated with a secondary sinusitis and bronchitis occurred, which responded to nasal shrinkage and postural drainage. A severe serum sickness developed on the fifth day, resulting in increased irritability and spasms which persisted for four days but gradually responded to treatment. On the eighteenth day a hordeolum of the left eye and a generalized furunculosis developed, but both responded slowly to treatment.

On the thirty-first day of hospitalization the patient was discharged as cured, with instructions to return at stated intervals for injections of toxoid to afford some degree of future immunity.

REVIEW OF LITERATURE

A review of the literature discloses great confusion in the ability to distinguish between a relapse and a second attack of tetanus.

A relapse may perhaps be defined as a return of the initial signs and symptoms of tetanus following a relatively short period of complete cessation of symptoms, though the persisting infection or lesion may still be present. What constitutes a reasonable time interval between recurrence of symptoms is a debatable point, but it certainly should not exceed several weeks to a month.

When several months has elapsed with complete freedom from symptoms following the successful treatment of clinical tetanus, it seems fair to assume, in the presence of new causative factors, that one is dealing with a second attack of tetanus. All known foci or suspicious lesions must have been completely eradicated and the wounds present during the former attack completely healed.

However, in either case there may not be a history of recent trauma nor may one be able to detect the initial lesion.

Second attacks are reported by: Turanu,⁴ with an interval of fourteen months; Bérard and Lumière,⁵ who reported Péchu and Matelin's case, with an interval of five months; Palma⁶ with an interval of nine months; Speed,⁷ whose case was due to shrapnel, apparently overlooked at the time of the injury, with an interval of fourteen months, and, finally the Dumitrescos,⁸ with an interval of six months.

Relapses of convalescent and apparently recovered cases of tetanus may be cited in the cases reported by Fink,⁹ whose patient had two relapses within a period of six months, while under continuous medical supervision, and by Honda,¹⁰ whose patient, ten weeks after apparent cure (during which time he had received additional tetanus antitoxin), had a relapse and died.

COMMENT

Our case appears to be the sixth instance reported in the literature of a second attack of tetanus in the same patient. There may be others, and it would be of interest to have them reported.

116 West Temple Street.

4. Turanu, G.: Tetanos recidivant si tratamentul aplicat, Rev. de chir., Bucuresti 38: 66-70 (May-June) 1935.

5. Bérard, L., and Lumière, A.: Rechutes et recidives de tétanos, Presse méd. 33: 993 (July 25) 1925.

6. Palma, R.: A proposito de un caso di tetano recidivo, Ann. ital. di chir. 10: 101-107 (Jan. 31) 1931; Arch. ed. attid. Soc. Ital. de chir. 37: 725-728.

7. Speed, Kellogg: Recurring Tetanus, Med. & Surg. 2: 499 (May) 1918.

8. Dumitresco, Théodore, and Dumitresco, Dèmetre: Récidive tétanique six mois après le tétanos initial, Bull. et mém. Soc. méd. d. hôp. de Paris 40: 732-736 (June 12) 1933.

9. Fink, L. G.: Relapses in Tetanus: Two Severe Relapses at Long Intervals, Indian M. Gaz. 44: 338-340, 1911; J. Trop. Med. & Hyg. 14: 161 (June 1) 1911.

10. Honda, M.: Ein Fall vom kindlichen Tetanusrezidiv, Orient. J. Dis. Inf. 21: 33 (March) 1937.

Special Articles

SOME MEDICAL ASPECTS OF CHEMICAL WARFARE AGENTS

A REVIEW

LEON GOLDMAN, M.D.

AND

GLENN E. CULLEN, Ph.D.

CINCINNATI

The greatest menace of poison gas is its fear inducing properties.

—F. N. Pickett.¹

Ever since the appearance of that huge ugly chlorine cloud in Flanders Field on April 22, 1915, chemical agents have proved themselves efficient warfare agents. Because of this simple fact and in spite of all signed political documents to the contrary, these materials will be used when necessary and when available in future warfare. Since the technic of modern warfare has changed so considerably the civilian and especially the civilian physician must have more than an academic interest and knowledge of chemical warfare compounds.

The official report² of the ninth International Congress of Military Medicine and Pharmacy includes the sentence "Considering the great progress of the chemical industry in all countries since the war, the new discoveries made in this field, and the technical advances in other methods of warfare, it is very likely that in future wars the use of gas will be made on a larger scale." Incendiary bombs and mustard gas were used extensively and efficiently in the Italo-Ethiopian War. So far, incendiary bombs and flame throwers, but not gas, are being used in the present European wars.

There have been too few voices raised to rid the public of this propaganda induced fear of chemical warfare. Notable of these voices has been J. B. S. Haldane³ with his "Callinicus: A Defence of Chemical Warfare." Others have been the chemist James Kendall⁴ with his "Breathe Freely" and, in this country, Prentiss⁵ with his technical work on "Chemicals in War." Frequently the noninformed physician shares in this unwarranted fear of chemical warfare. Since the last war there have been relatively few changes in the actual principles of the treatment of chemical warfare casualties, but there has been considerable progress in the study of the organization of the civilian aspects of this form of warfare. In recent years only scattered reports have appeared in the American medical literature.

In order to emphasize the clinical aspects of the lesions produced by the chemical warfare agents, we have included in our review only the more important principles. We have learned that otherwise the subject will appear too confusing and the practical aspects will be lost. The detailed study of specific portions can be investigated by the individual interested.⁶ This review

will consider the military aspects only as they are concerned directly.

Very early it was found that all the agents used at present could be classified, physiologically, into five groups: (1) lacrimators, (2) lung irritants, (3) vesicants, (4) sternutators, (5) nerve and blood poisons. This classification is essentially that of Julius Meyer.⁶ The Chemical Warfare Service of the United States during the last war examined some 4,000 substances, only fifty-four of which were tried in the field and only twelve in use at the end of the war. At the present time, and as far as can be determined, the efficient chemical warfare materials of England, France, Germany, Italy and the United States are practically the same. In the groups indicated the more important ones, from the point of producing casualties, are the lung irritants and the vesicants.

It is seen readily that quite a number of difficult situations arise with the problem of caring for the casualties of civilians and especially of large numbers of civilians. Previously trained personnel, both medical and nonmedical, is absolutely necessary. This is called "gas discipline." The number of gas casualties is always inversely proportional to the character of gas discipline. This has been realized in all European countries and for some years this form of training and preparedness has been going on.⁷

Physicians will be concerned with those casualties in which pulmonary damage and skin burns have been incurred. Sometimes in the midst of confusion and panic but little can be done, and yet, on the other hand, treatment must be instituted as early as possible to prevent serious reactions and death. It is seen from the table for the dangerous lung irritants that absolute rest is needed and, of course, rest in a gas free atmosphere. Any shelter that is free from the penetration by the noxious gases must have some method of producing or obtaining its own pure air supply, otherwise the "air tight" room will soon become uncomfortable and perhaps even dangerous, especially if it is crowded. So the patient must be brought by stretchers or ambulances to previously arranged treatment centers. Because of the insidious nature of these gases, it is much safer to consider any gassed patient as in a serious condition. Artificial respiration must not be given since the patient gassed by the pulmonary irritants must be kept at absolute rest. The most serious symptom to combat is, of course, pulmonary edema. Especially with phosgene, this may coexist with deep cyanosis and increased venous pressure (the so-called blue type of asphyxia) or with the even more serious form, the shock form (the so-called pallid or gray type). The treatment is, of course, different with each of these types. For the first type, oxygen of course should be given. If the various types of oxygen inhalation apparatuses are not available, oxygen may be given in a much less efficient manner by means of subcutaneous injections. Henschen⁸ reports that 500 cc. may be so given. Venesection also should be done, especially if the neck veins continue to be distended and the right side of the heart continues to be dilated. At the present time some are advising the prophylactic use of chemotherapy, such as the quinine derivatives and sulfapyridine, to prevent the

Professor Cullen died, April 12, 1940.

From the Department of Pediatrics and the Children's Hospital Research Foundation.

1. Pickett, F. N., quoted by Kendall, James: *Breathe Freely! The Truth About Poison Gas*, New York, D. Appleton-Century Company, 1938, p. 27.

2. Bainbridge, Capt. William Seaman: *Report on Ninth International Congress of Military Medicine and Pharmacy*, Mil. Surgeon 82:226 (March) 1938.

3. Haldane, J. B. S.: *Callinicus: A Defence of Chemical Warfare*, London, Paul Kegan, 1928.

4. Prentiss, Augustin M.: *Chemicals in War: A Treatise on Chemical Warfare*, New York, McGraw-Hill Book Company, Inc., 1937.

5. Goldman, Leon, and Cullen, Glenn E.: *The Vesicant Chemical Warfare Agents*, to be published.

6. Meyer, Julius, quoted by Hederer, C., and Istin, M.: *L'Arme chimique et ses blessures*, Paris, Librairie J. B. Baillière et fils, 1935, p. 42.

7. Official Publications on Air Raid Precautions, London, His Majesty's Stationery Office, 1936, 1937, 1938, 1939.

8. Henschen, C.: *Chirurgische Notmassnahmen bei der Behandlung der Kampfgasvergiftungen der Grünkreuzgruppe*, (Chlor, Phosgen, Perstoff, Chloripikrin), Schweiz. med. Wchnschr. 69:961 (Oct. 21) 1939.

secondary bronchopneumonia. However, bronchopneumonia is not very common on recovery from the acute phase of phosgene poisoning and the bacteriology of the bronchopneumonia has not been studied thoroughly. Therefore the value of these drugs is not known at present. For the pallid type of asphyxia as much of

by the lung irritants is acute pulmonary edema associated with emphysema, and pulmonary vessel thromboses. The other significant visceral pathologic changes include purpura especially throughout the brain, and dilatation of the right side of the heart. When a patient gassed by a lung irritant also needs surgical attention,

*Some Clinical Aspects of the More Important Chemical Warfare Agents**

Group Agents	Physical State and Odor	Persistence	Significant Concentrations, Mg./L. or Oz./1,000 Cu. Ft. Exposure of 10 Minutes (Prentiss)			Symptoms	Treatment	Protection Against
			Lowest Irritant	Intoler- able	Lethal			
Lacrimators Chloroacetophenone	Powder with a locust odor	Days (solid)	0.003	0.0045 (impossible to reach in field conditions)	0.85	Eyes water and burn; skin, especially freshly shaven, smarts	Boric acid eye solution, sodium bicarbonate solution to skin	Gas mask
Brombenzyleonide	Powder with sour fruit odor	Days (solid)	0.00015	0.0008	3.5	Watering of eyes; burning of nose	Boric acid solution	Gas mask
Lung Irritants † Phosgene.....	Colorless gas, odor of moldy hay	Nonpersistent	0.005	0.20	0.50	Choking cough; insidious; blue or pallid types of asphyxia	Absolute rest; warmth; shock treatment; oxygen therapy methods; for pulmonary edema	Gas mask
Chloropierin (used in civil life as insecticide, fungicide, and to remove rats from ships)	Slightly oily colorless liquid; odor of fly paper	Nonpersistent (more so, however, than chlorine or phosgene)	0.009	0.050	2.00	Lacrimation and vomiting in weaker concentrations; definite lung irritation; may be insidious	Wash eyes with boric acid solution, otherwise, same treatment as for phosgene	Gas mask
Vesicants Mustard gas.....	Oily and colorless in pure state; later becoming brown; mustard or garlic odor	Persistent	0.001	Eyes 0.001 (1 hr.)	0.15	Delayed symptoms 2-6 hours from vapor burns, 15 minutes to 1 hour from liquid burns, blisters on skin and severe irritation of lungs if breathed in	If treatment delayed, skin burns cannot be prevented; wash with soap and water, gasoline, carbon tetrachloride, weak solution of bleach powder (irritant 1); late treatment that of burns in general	Gas mask protects only the lungs; special clothing
Lewisite.....	Colorless liquid; odor of geraniums	Persistent; slightly less than mustard gas	0.0008	0.0008	0.12	Sneezing; in 15-30 minutes skin burns; later arsenic poisoning	Immediate treatment, soap and water; ferric hydrate pastes and general measures	Gas mask; special clothing
Sternutators Diphenylchlorarsine (saczo gas)	Dark brown liquid; odor of shoe polish	Nonpersistent	0.0005	0.0012	1.50	Coughing, sneezing, vomiting, headache and mental depression later	Rest; mouth wash of sodium bicarbonate solution and instill in nose also; early, breathe chlorine from bleaching powder bottle	Gas masks with excellent filters developed at present (if mask is defective, this gas will penetrate)
Diphenylamine chlorarsine (adamite)	Solid; dark green or brownish yellow, almost odorless at ordinary concentrations	Nonpersistent	0.00038	0.005 (3 min.)	3.00	Same as foregoing	Same as foregoing	Same as foregoing
Nerve and blood poisons Hydrocyanic acid	Wheo pure, a clear, colorless liquid with odor of bitter almond	Nonpersistent	0.020	0.030	0.200	Faintness, dizziness, dryness of throat, coma and death	Death too quickly for any therapy; may try artificial respiration, restoratives	Gas mask (special canister)
Carbon monoxide (produced by practically all explosives)	Colorless, odorless gas	Nonpersistent	0.7-0.8 (1 hour)	1.1-1.4 (1 hour)	4.6 (1 hour)	Blurring of vision, weakness, headache, coma, peculiar cherry tint, death	Remove to fresh air, artificial respiration, intravenous methylene blue (?)	Gas mask (special canister)

(Although hydrocyanic acid and carbon monoxide were tried in the last war, they are of probability will not be used now because of their too rapid dispersion.)

* Table modified from Prentiss, E. B. Vedder (Medical Aspects of Chemical Warfare); Sartori (The War Gases) and others.

† Chlorine is not included because chlorine is not used as such by any nation.

‡ Henderson and Haggard (Noxious Gases).

routine shock therapy should be given as is possible. In this condition the shock plus the emphysema, of varying degree and distribution (even mediastinal) may obscure the presence of moisture in the chest. In general, the treatment of this form is very discouraging and the patient may die within several hours in spite of intravenous injections of various forms of blood and other fluids, and cardiac and respiratory stimulants, even if all these materials are available in the emergency first aid stations. Briefly, the essential pathologic condition caused

he may be operated on when his general condition "warrants." Local anesthesia, nerve block of sacral or spinal type, are the forms preferred. Chloroform may be given.⁸

The other dangerous forms of gas poisoning are by means of blistering agents, the "chemical lepers." This phase has been reviewed in great detail for the dermatologist.⁵ Because of the persistence and efficiency of these agents, these will be used frequently in preference to the lung irritants. These gases too are insidious. For

some hours with mustard gas there is no complaint; then the eyes may become reddened and the skin burns and itches, especially in the moist sweating areas. Erythema appears chiefly in mild cases, in the form of a punctate eruption if the exposure has been slight. This may clear in from twenty-four to forty-eight hours. In severe cases the color may become darker, bullae are formed after eight to twelve hours and, if the patient has breathed in the gas, bronchopneumonia may occur. Occasionally pigmentation results from mustard gas burns even after mild degrees of erythema. This may last for several weeks and then the skin desquamates and the color fades. To prevent skin burns, the vesicant must be removed from the skin in from three to ten minutes. Under most situations and especially with uninformed patients this will be impossible. It is important for the physician to note that these patients are dangerous for him to handle. Unless the physician is protected properly against breathing the chemical agent vaporizing from any of these areas, he, the physician, will become a casualty. The gas mask will protect only against breathing the poison gas but will not protect the skin surface or the clothing. Special oilskin gloves and oilskin clothing are needed. With these cumbersome outfits it is difficult and impossible to work for any long periods. Liquid vesicant agents may be removed from the skin with soap and water, kerosene, gasoline or carbon tetrachloride. It must be remembered that these materials are only solvents and not neutralizing agents and therefore fresh cloths should be used each time. If bleaching powder solution is used to oxidize the gas, this solution of bleaching powder must be removed from the skin in order to avoid burning with this also. For burns with lewisite gas, a neutralizing agent such as 5 per cent solution of sodium hydroxide may be used and then rinsed thoroughly from the skin. After the bulla has formed, débridement should be done. Various pastes are then used, but it is doubtful whether they have any "specific" action. Tannic acid solution was used to treat mustard gas burns in the Italo-Ethiopian War and the results, uncontrolled, seemed encouraging. These cutaneous burns are relatively slow in healing and the patient's morale must be kept up during this period. Unlike the pulmonary complications following the lung irritants, bronchopneumonia is much more common after irritation of the tracheobronchial tree with mustard gas. For lewisite, the general measures to minimize the subsequent arsenical intoxication must be given. The usual bland treatments should be used on the eye injuries. It is recommended that no cocaine be used in the eye and that the eye be not bandaged. Briefly, the pathologic changes of mustard gas poisoning include, in the skin, perivascular infiltrates, vessel thromboses and vesicle and bulla formation. In the lung the picture is chiefly that of severe ulceration of the trachea, larynx and bronchi; bronchopneumonia and pulmonary abscesses may occur later.

Since mustard gas is persistent, lasting for days, weeks and even months under certain conditions, areas contaminated by this gas are dangerous for some time. These areas must be freed from mustard gas or decontaminated, as it is called. This is done usually with bleaching powder solutions and vigorous cleansing; contaminated clothing may be decontaminated by long exposure to windy air, by boiling, by chlorination or by the action of bleaching powder. As was mentioned before, special clothing must be worn, because this gas will penetrate cloth and even shoe leather. Because of

all this elaborate routine, it is seen readily that special treatment centers are required to treat mustard gas patients. Moreover, food and water supplies also can be contaminated. Severe poisoning can result from the ingestion of such materials. Water can be freed by the methods mentioned. Food usually must be discarded and destroyed. As a rule, intact cellophane wrappers or glass jars will protect food. Ordinary paper wrapping and paper bags do not protect. It should be emphasized again that early and prompt measures must be taken for patients affected by the lung irritants and blistering agents; in many instances even this purely symptomatic treatment will not be available.

BRIEF SUMMARY OF FIRST AID MATERIALS

From the data presented it is evident that there must be set up special treatment centers for the chemical warfare casualties. These patients cannot be handled adequately in an ordinary first aid station. In the treatment center, special rooms must be set aside for patients contaminated by mustard gas. Special precautions must be taken about the clothing of such patients. The general material required in the ideal protected treatment center would be (1) stretchers and beds, (2) blankets, (3) hot water bottles, (4) hot drinks, (5) fresh clothing, (6) oxygen breathing apparatus, (7) gastric tubes, (8) gas masks, (9) mustard gas resistant clothing, gloves, sheets, (10) venesection needles. The special materials required would be (1) bleaching powder, (2) sodium bicarbonate, (3) alcohol, (4) carbon tetrachloride, (5) kerosene, (6) soap and water, (7) 5 per cent sodium hydroxide, (8) ferric hydrate paste (value ?), (9) compound tannic acid solution,⁹ to be used for patients received with bullae already on the skin, (10) silver nitrate solution (10 per cent), (11) cocaine solutions, (12) morphine, (13) gentian violet (1 per cent), (14) heart stimulants, (15) respiratory stimulants (caffeine, xanthine derivatives), (16) fluids for intravenous use: (a) blood, (b) plasma, (c) dextrose, (d) acacia, (e) methylene blue, (f) sodium thiosulfate. As mentioned before, all cases should be considered as serious and so treated. For minimum therapy, a patient subjected to a lung irritant must be held at absolute rest and kept warm for some hours. For the patient exposed to mustard gas, the clothing must be removed, the body surfaces washed with soap and water or kerosene or bleaching powder or paste must be used. In times of stress, this really may be all that can be done.

To keep a treatment center effective, patients should be removed as quickly as possible. They can be moved only by ambulance when that procedure is safe for the patient and the patient himself is not potentially dangerous to those who may care for him in the next treatment area (hospital).

THE GAS MASK

The ordinary gas mask consists essentially of some form of filter, contained in a metal box called the canister, and a tight fitting face mask. All air breathed in must come through the filter. The expired air is forced out through a valve. The filter is really a combination of mechanical filtering and of chemical reaction to adsorb and neutralize many of the gases. It is difficult to say just how long a mask will last. Apparently for the concentrations encountered in civilian life the mask

9. Fantus, Bernard, and Dyniewicz, H. A.: Compound Solution of Tannic Acid in the Treatment of Burns, *J. A. M. A.* 109: 200 (July 17) 1937.

may be good for many months (?). In general, the mask now in use will protect against the breathing in of all the present known war gases. The ordinary masks, however, will not protect against ammonia, hydrocyanic acid or carbon monoxide gases. For certain individuals a diaphragm may be incorporated in the face piece of the mask so that one can speak with the mask on. If one wears glasses constantly it is difficult to wear those with the ordinary mask. For the eye pieces of the mask, materials are provided to protect against clouding over with moisture. When the proportion of oxygen in the air is low, below 16 per cent, the gas mask will be of no use. Under these circumstances the person must carry, attached to his mask, his own oxygen tank, and the whole intake system will be a closed one. A mask with a hose reaching out into pure air can also be used. The gas masks for infants must of necessity be really a complete tent arrangement. Animals also must have some sort of mask.

Of course, the mask reduces to some extent the efficiency of the individual wearing it. When the wearer becomes accustomed to the mask and loses his fear, he can do his ordinary work with ease. It is difficult, however, to do fine and close work with the mask.

SPECIAL SITUATIONS AND REQUIREMENTS

It is obvious that the use of chemical agents for warfare against civilians suggests many additional problems. Only a few of these will be considered here. It has been mentioned before that a person affected by blistering gases may have also wounds requiring surgical treatment. This patient is dangerous to care for until, at least, his clothing is removed and his skin treated. There is also another angle to this, namely special precautions in the operating room under the potential danger of bombing with war gases. If the patient is getting general anesthesia, this anesthesia must go through a special mask. The surgeon and first assistant should have masks. Some recommend that, if there is any possibility that the air in the shelter may go below the desired oxygen levels, these two important members of the surgical teams be provided in advance with oxygen masks. All others in the room must also wear masks. For mustard gas, special clothing is needed in addition. If possible, extra personnel should be in the room to take care of decontamination so that the surgeon and the patient need not be disturbed. To avoid this complicated set up, operating rooms in the city should be bomb proof and have independent air purification.

The medical care of chemical warfare casualties produced on board ship is even more complicated. There is usually no good place to evacuate casualties. The ventilating system must be watched carefully; otherwise the gases may be drawn throughout the ship. Mustard gas may remain on the painted surface for some time and then, when warmed, vaporize and cause burns. Food cargoes carried by the ship may be contaminated also. It has been suggested that ships gassed, especially with mustard gas, be marked with special quarantine flags.

Agents for chemical warfare are dangerous to manufacture. The workers must be protected against the industrial hazards, chiefly various forms of cutaneous irritations and burns. Cleanliness in the factory and training of the worker (gas discipline) will do much to reduce these hazards.

INCENDIARY AGENTS

Of great importance to civilian population is the use of "thermite" bombs. Thermite is an intimate mixture of iron oxide and finely powdered aluminum. With a suitable starter, at high temperature, the aluminum and iron oxide react to form aluminum oxide and molten iron. There is also the kilo magnesium (electron) bomb¹⁰ with a primary composition of the thermite type and the tube of an alloy of magnesium with a small proportion of aluminum. In this bomb everything, including the tube, is incendiary material. When bits of these materials come in contact with the body, very severe deep burns are produced. As one might imagine, burns even from tiny particles are very painful. The treatment is the usual treatment for severe metal burns. Such burns are said to cause more fear and panic than burns from the vesicants.

Phosphorus burns may also be encountered when this chemical is used to produce concealing smokes. These burns are treated by keeping them protected from all air by means of water or oil, or by using copper solutions to form insoluble salts. Combustible oils mixed with soap or jelly and containing small pieces of metallic sodium may also be used as incendiary agents.

RESIDUAL EFFECTS OF CHEMICAL WARFARE AGENTS

There is a vast amount of misinformation on the residual effects of chemical warfare agents. The blame for practically every complaint, respiratory or otherwise, in veterans has been placed on "being gassed in the war." The truth of the matter is that there are relatively few residuals from chemical warfare and certainly not those horrible ones following shrapnel, gunshot wounds and the like. If any kind of warfare could be called "humane," chemical warfare warrants such a term. The question of the future of chemical warfare casualties has been studied thoroughly by Gilchrist and Matz.¹¹ In most instances "gas discipline" was very poor and many casualties were suffered through carelessness. Moreover, with little if any immediate therapy in most cases the relatively low percentage of sequelae is indeed surprising. With an efficient arrangement with trained personnel, this percentage could be reduced even more.

THE DETECTION OF CHEMICAL WARFARE AGENTS

The most reliable method at present to detect these compounds is through their odor. This, of course, presupposes a knowledge of the characteristic odors of these gases. Such knowledge can be obtained by repeated training. This is done usually by smelling small quantities of these materials adsorbed on particles of charcoal and contained in a glass bottle. It is important that the odor be recognized with the first cautious sniff, since repeated smelling dulls the olfactory sense and may even be dangerous. A trained observer is said to be able to identify the agent by other immediate effects on the body such as irritation of the eyes, nose and throat and pricking of the skin. Prentiss⁴ stresses the fact that one should be able to distinguish gas from powder fumes. With the ignorant untrained civilian there is only the memory of what he has read or heard and, later, what he has experienced.

There is no simple, easy, specific chemical method to detect the presence of these war gases. Gigon and

10. Air Raid Precautions Handbook No. 9: Incendiary Bombs and Fire Precautions, London, His Majesty's Stationery Office, 1939, p. 1.

11. Gilchrist, H. L., and Matz, Philip B.: The Residual Effect of War Gases, Washington, U. S. Govt. Printing Office, 1933.

Noverraz¹² have described a colorimetric quantitative method depending on the hydrolysis of the gas with the formation of acids. They state that the determinations can be made very quickly.

SUBJECTS NOT INCLUDED

Since this review is to be practical and clinical, many subjects have been omitted. Some of these are of great importance, such as the medical aspects of individual protection in the home, the detailed setup of mass protection facilities, the elaboration of "fear psychology" of gas masks and chemical warfare, the applications of methods of chemical warfare to insect destruction and the like, review of some of the work on the hydrolysis of the irar gases, and the chlorination of mustard gas (and lewisite). There has been left out a discussion of some of the less common gases such as ethyldichlorarsine, phenyldibromarsine, ethyldibromarsine, perstoff (trichlormethyl chloroformate), cyanogen chloride, and those chemicals which produce screening smokes such as titanium tetrachloride, sulfur trioxide and oils. Nothing is known at present about the administration of sulfanilamide or its related compounds in gas poisoning in order to prevent subsequent wound infection or for the actual therapeutics of infections associated with the gas poisoning. The subject of complete destruction of cities by poison gas is not even considered, since this is entirely impossible now and is merely a myth produced by imaginative writers. There is always the real danger of the production of new and powerful gases which will not fall into our present categories. This is not an easy task because the gas must have the following properties:

1. The gas must have a definite toxic quality (or produce smoke or incendiary activity).
2. The raw materials must be available.
3. The gas must be noncorrosive on storing.
4. The gas must be stable.
5. The gas must be heavier than air.
6. The gas should be susceptible of being liquefied.

The chemical warfare industry is closely associated with the dye industry. From our medical point of view we can always give symptomatic treatment. Our ideal, however, should be causal therapy. Our Chemical Warfare Service¹³ adds that "no agent is known which is more effective than mustard gas in sending men to the hospital; and there is little evidence that a gas more effective than phosgene is available for poisoning the air."

SUMMARY

This review is not intended to be an encyclopedic reference work on chemical warfare. It merely emphasizes some of the more important points of the medical aspects of such warfare especially as it relates to the civilian physician. We must face the fact that such warfare is efficient and may be used. In fact, it seems much less dangerous as regards fatalities and residuals than the other commoner and more horrible forms of warfare. This brief report will provide a vocabulary for a type of medicine which is new to most of us, a type of medicine which will interest every branch of experimental and clinical medicine. With knowledge in advance we can assist in driving away the fear of the unknown. We can then reduce the number of casualties from these chemical compounds.

12. Gigon, A., and Noverraz, M.: *Détection de gas de guerre*, Schweiz. med. Wchnschr. 69: 859 (Sept. 23) 1939.
13. Office, Chief of the Chemical Warfare Service: *The Story of Chemical Warfare*, Washington, D. C., January 1939.

COMMUNITY OF INTEREST BETWEEN FEDERAL TRADE COMMISSION AND MEDICAL PROFESSION

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Professor Quiz would probably get some interesting answers from physicians as to what the FTC is and how it functions. That it is a member of the New Deal alphabetical family might be a good guess, but this would only get one the gong, as we shall later see. Even though we should give out the clue that the FTC is not a new governmental agency but one which has been in active operation for a quarter of a century, there would perhaps still be few who have a clear conception of the functions of the FTC which are of interest to physicians. It is for this reason that some explanations are believed to be not only appropriate but necessary for the information of the American medical profession.

At the risk of offending the intelligence of some of the better informed readers of *THE JOURNAL*, this explanation will be made quite elementary. It will be noted first that the fundamental principle on which the duties of the FTC rest is the elimination of "unfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce."

Among the unfair trade practices with which the FTC has to deal, false and misleading advertising is one of the foremost problems. Of all the appeals made for popular attention, those pertaining to health and beauty aids are most voluminous. In the hope of securing these precious treasures, mankind will make any sacrifice of money and effort. The lure becomes all the more irresistible when offered at bargain prices as a short cut to the desired goal. In the keen competition for business, therefore, there is great temptation for vendors of foods, drugs, cosmetics and health devices to paint the pictures of their products in too rosy a light.

TRUTH IN ADVERTISING

It is perhaps rather generally understood that the Food and Drug Administration of the Department of Agriculture has something to do with the regulation of this group of products. It may not be so generally known, however, that the FTC also has obligations in this field. In order to dispel any confusion that may exist in this connection, it will be observed that the Food and Drug Administration exercises supervision over misbranding (labeling) and adulteration, while the FTC is charged with the duty of confining advertisers of these products to fair and truthful representations. This is strongly reminiscent of the trend of medicine from its earliest beginnings. Although no one would presume to say that medicine at any stage of its history has ever been free from fallacies, it has always been a champion of truth against falsehood in medical teaching and practice. While many of the medical axioms of a century ago would today represent the trappings of quackery, medicine has always been motivated by a sincere purpose to expose falsehood and espouse truth in accordance with the best standards of any given period. It should therefore be welcome news to the medical profession that its age old struggle for truthfulness with respect to drugs and similar products is now further fortified by the regulatory authority of the federal government.

For a clearer understanding of the way in which the FTC fits into this picture, a brief reference to the legal background will be helpful. The procedure in the interest of eliminating false advertising has not always been so simple and direct as it is at the present time. Prior to 1938 it was necessary, in addition to showing that the advertising actually was false and misleading, to establish the fact that such false advertising was detrimental to the interests of competitors and that in correcting the offending advertising the public interest would be served. These were the essential elements held by the Supreme Court to be necessary in order to establish jurisdiction under section 5 of the act of 1914, which declared "unfair methods of competition in commerce" to be illegal. Under this provision the major emphasis was placed on the protection of one competitor against unfair practices of another. It was obvious that the consumer's interest required more specific safeguarding. In order to accomplish this and otherwise to extend and simplify the legal procedure, the Wheeler-Lea amendment was enacted in 1938. Section 5 was amended by adding to the phrase "unfair methods of competition in commerce" the words "or unfair or deceptive acts or practices in commerce." This serves to give specific recognition to the Commission's duty to protect the public directly by the prevention of all unfair or deceptive acts or practices in commerce, as well as indirectly through the public's interest in the preservation of fair competition.

In addition to amending section 5, the Wheeler-Lea amendment appends several new sections (12 to 18 inclusive), giving the Commission further specific powers over the advertising of foods, drugs, cosmetics and devices. First of all, false advertising is defined in the following manner:

SEC. 15(a) The term "false advertisement" means an advertisement, other than labeling, which is misleading in a material respect; and in determining whether any advertisement is misleading, there shall be taken into account (among other things) not only representations made or suggested by statement, word, design, device, sound, or any combination thereof, but also the extent to which the advertisement fails to reveal facts material in the light of such representations or material with respect to consequences which may result from the use of the commodity to which the advertisement relates under the conditions prescribed in said advertisement, or under such conditions as are customary or usual. . . .

Any false statement, either direct or implied, by whatever advertising medium, comes within the foregoing definition. But it should also be observed that failure to reveal material facts is likewise classed as false and misleading advertising.

POWERS OF THE FEDERAL TRADE COMMISSION

Of special interest is section 13(a), which authorizes the Commission to apply for injunction under certain specified circumstances, whenever the Commission has reason to believe that such action "would be to the interest of the public." On securing a temporary injunction against the advertising of a product, all claims complained of in the injunction are ordered to be suspended "until such complaint is dismissed by the Commission or set aside by the court of review, or the order of the Commission to cease and desist made thereon has become final within the meaning of section 5." Already the injunction provisions have been invoked in a number of cases involving dangerous drugs. In no instance has an application for injunction been denied. Notable in this group of products

are numerous abortifacient remedies containing a familiar coterie of drugs—ergot, ergotin, apiol, oil of savin, cotton root bark, oil of tansy, quinine and various purgatives, among which aloes, cascara and podophyllin predominate. Another important group of preparations against which injunctions have been secured is the fat-reducing remedies. The lure of fat reduction is held out to overplump females by many and devious methods ranging all the way from hokus-pokus to toxic and dangerous drugs, including thyroid substance and the dinitro compounds dinitrophenol and dinitrocresol. Even the credulous soul who falls victim to some crackbrain theory will receive protection through the suppression of false advertising, but the injunction is reserved for the immediately dangerous products such as indicated.

The last sentence of section 15(a) was drafted with particular reference to the medical profession. This sentence reads as follows:

No advertisement of a drug shall be deemed to be false if it is disseminated only to members of the medical profession, contains no false representation of a material fact, and includes, or is accompanied in each instance by truthful disclosure of, the formula showing quantitatively each ingredient of such drug.

Some doctors have been under the impression that products advertised only to the medical profession are exempted from the requirements of the FTC. This conception is erroneous. It is assumed in the wording of the act that if a physician knows the formula for a preparation he is in a position to judge for himself as to the truth or falsity of the advertising representations relative thereto. It is, however, required that the advertising shall contain "no false representation of a material fact." Falsehood here, as elsewhere, may stem not only from what is said of a product but also from "material facts" which are withheld when such facts are necessary for the proper appraisal of a product.

One more item should be made clear before passing on from the legal considerations. The FTC cannot stop the sale of any product because of false advertising, nor is it endowed with authority to impose punitive penalties. Its maximum corrective power in such circumstances is the issuance of a cease and desist order specifying claims and inferences in advertising which are adjudged to be false and misleading after weighing all the evidence bearing on the subject. The cease and desist order also demands the discontinuance of the specific claims "or others of like import." While the law provides formidable civil penalties for violation of a cease and desist order, and criminal penalties including both fine and imprisonment for false advertising of commodities injurious to health, the prosecution leading to the imposition of these penalties is conducted by the Department of Justice rather than the FTC.

Since a discussion of legal matters is not destined to evoke an outburst of enthusiasm among physicians, I have endeavored to comment on the original act and the Wheeler-Lea amendment only enough to bear out the fact that the present law with respect to false advertising of foods, drugs, cosmetics and devices is reasonably adequate to deal with most of the abuses in this field. It is reasonable to suppose that the physician's major interest lies in the application of this law to matters which more or less concern him.

From what has already been said there could hardly be any mistake as to the type of advertising against which this discussion is directed. This is distinctly not an attack on advertising in general. There is good advertising and bad advertising. The former has a vital

and necessary part to play in our economic life and welfare. The latter is an outlaw against which the hand of the law and the bans of decency are raised. It is gratifying to note that there is an ever increasing urge from within the drug industry itself for more conservative and reliable advertising. It is being recognized not only as good ethics but also as good business. Any honest advertising, whether directed to the medical profession or to the lay public, may be assured of no difficulties at the hands of the Federal Trade Commission. On the other hand, false and fraudulent advertising may expect no quarter. No fair-minded advertiser could find fault with this policy. On the contrary, those who strive to tell the truth about their wares naturally applaud any measures designed to force their less scrupulous competitors to do likewise.

USE OF PROPRIETARIES

Preparations which are "factory made" from fixed formulas are called proprietary remedies. Perhaps the average physician would consider it beneath his professional dignity to discuss them. But in no small measure the medical profession itself has fallen into the habit of prescribing proprietary medicines. The art of prescription writing in its elemental form is on the road to oblivion. Prescriptions rarely contain specifications as to component drugs and quantities of each. The prescription will commonly specify some combination of drugs designated by a trade name because some detail man or the manufacturer's literature received with the sample has convinced the physician that the preparation is good for certain symptoms or ailments. He may know next to nothing about the actual contents of the product, and even less about their individual and collective therapeutic action. His knowledge of the therapeutic uses and limitations of ready-made products is all too often confined to such information as the manufacturer sees fit to give. In many instances the physician is quite as easily led astray by false advertising as is the layman. More will be said on this subject later in connection with testimonials.

While this may be a somewhat overdrawn picture, where is the doctor who doesn't at any time resort to ready-made drugs and mixtures bearing meaningless trade names? If these things be true, it hardly becomes the medical profession to look with scorn on proprietary preparations as such. There is, of course, little excuse for physicians prescribing proprietary medicines blindly, as they have at their disposal the advice of the Council on Pharmacy and Chemistry of the American Medical Association for their guidance. However, either through disregard of available advice or otherwise, many doctors do persist in taking their instruction in modern drug therapy from commercial houses. Since this is so, it should be gratifying to know that there is an agency which is authorized and able to require the drug distributors to tell the whole truth and nothing but the truth about their products.

DRUGS FOR SELF MEDICATION

The great bulk of the FTC's problems with respect to drugs, however, has to do with preparations sold to the lay public for self medication. This being the case, some may ask Why bring that up in a physician's magazine, since physicians as a rule are constitutionally opposed to self medication? Let us look at this issue in an unimpassioned and matter of fact light. Whether we like it or not, self medication is the inalienable right of Americans, and it is here to stay. Physicians cannot disclaim any interest in the matter, if for no other reason

than that too much self medication is detrimental to their professional interests. Another more laudable motive for looking into this matter with a searching eye is the fact that medical men are committed to the task of protecting health and life by whatever means, to the fullest extent of their ability. It is for this reason that for many years the columns of the American Medical Association have been thundering away at quackery and nostrums that prey on the lives and financial resources of credulous millions. A splendid contribution has thus been made, but the full fruition of these efforts rests with regulatory measures whereby compliance with certain standards can be enforced.

IMPLICATIONS OF SELF MEDICATION

Self medication then, like the poor, we shall have with us always. The question confronting the medical profession is what attitude we shall take toward the problem. The natural impulse is to turn a deaf ear. But sincere medical men cannot so easily dodge responsibilities. In fairness to mankind we must first inquire into the evils, if any, that arise from self medication and, having discovered them, address ourselves to the task of minimizing these evils as much as possible.

I will not attempt either to justify or to condemn self medication. There are perhaps extremists on both sides of this question. Rarely do any of the ill effects of improper medication, even by physicians, ever appear under their proper labels, either in the morbidity or in the mortality reports. Undoubtedly many lives have been saved and much unnecessary suffering relieved by resorting to home remedies. On the other hand, every physician in active practice has very likely had experience with mistakes of self medication. "Too late" it may be when the patient seeks the physician's care. Or, if not too late, the doctor's task is often immeasurably increased because of costly delays and other forms of damage wrought by a misguided faith in "home remedies." It is ordinarily left to the doctor to take over after self treatment has been tried and found wanting, which may mean either an attempt to repair any damage which may have occurred or the signing of a death certificate. The physician no doubt feels that he has enough of his own mistakes to bury without assuming this duty for others.

Certainly the hazards would be much less if along with a conservative recital of the virtues that might be anticipated the purchasers of home remedies were told the unvarnished truth as to their therapeutic limitations. If persons are going to buy medicines for self administration, as is inevitable, then in the interests of life saving, to which all upright physicians must be committed, they should be served with reliable information on which to base mature judgment. This having been done, the individual becomes solely responsible for any evil consequences.

THE FEDERAL TRADE COMMISSION AND THE PHYSICIAN

The FTC has undertaken to enforce truthfulness in advertising of drugs and allied products in order to safeguard the public, as far as possible, against physical disasters born of false and misleading claims. In this connection the physician may be either an indispensable bulwark or a pernicious obstacle. Doctors indeed furnish strange paradoxes. Incredible as it may seem, the files of the FTC are replete with letters and other data from physicians attesting the virtues of all grades and shades of proprietary remedies. It is safe to say that there is no nostrum so rank as to be unable to

secure endorsement by some one authorized to affix an M.D. to his name. Medical endorsement of this character is the source of no great annoyance, as its scientific value can be readily challenged. A much more serious embarrassment arises from medical authorities whose published statements are either too old or too new. In the former classification are many erroneous conceptions that have been carried forward from medical antiquity and incorporated into recently published textbooks. At the other extreme are the new and unproved ideas of recognized leaders in contemporary medicine. Though an idea may be nothing more than a vague theory or hypothesis, it at once becomes legal tender provided it emanates from some one whose name "packs a wallop."

There is, happily, another side of the picture which much more truly characterizes the medical profession. Those who unwittingly or otherwise hinder progress represent a negligible minority. The true spirit of the medical profession is portrayed in that class of men who have on numerous occasions given unsparingly of their time and talent to render medical testimony, without compensation, when called on to do so by the FTC. Among these unsung heroes are not a few who have been known to refuse fancy fees for testimony contrary to their convictions, preferring instead to testify for the government along the lines which they knew to be scientifically honest. The FTC is proud to acknowledge the valiant support it has unfailingly received from the medical profession in the investigation of its most difficult and important cases.

In July 1939 an appeal was made to the secretaries of the state medical societies for assistance in securing medical witnesses if and when cases requiring this service were to be heard within their respective jurisdictions. The response was uniformly prompt and generous in spite of the fact that it was explained that the FTC is without funds with which to pay expert witness fees. It is generally realized, I believe, by any one who gives the matter a second thought, that the work of the FTC in attacking false and misleading drug advertising is a complement to the efforts of the profession itself in this field. The parallel activities of the medical profession and the FTC, therefore, may be properly regarded in the light of mutual assistance. Although a large proportion of the medical cases handled by the FTC are settled by voluntary agreement or stipulation, the Commission must be prepared in every single case to substantiate its complaints by competent medical testimony. It may therefore be truly said that medical testimony, either actual or potential, is the very backbone of every single case in this category. When falsehood and innuendo in this class of advertising become too distasteful to the physician he may take consolation in the thought that there is a way out of this wilderness, but he must at the same time realize that he or his kind will not only have to assist in blazing the trail but also lend a hand to the spade work.

Early Outbreaks of Bubonic Plague.—Plague can be traced back almost uninterruptedly to the third century before the Christian era, when Dionysius told of it as a fatal disease in Libya, Egypt and Syria, and Homer's story would carry us some 900 years farther back. There can be no doubt that the epidemic in Libya described at the beginning of the Christian era by Dioscorides, a Greek surgeon to the army in the time of Nero, and Poseidon, a physician of Alexandria, was true bubonic plague.—Scott, H. Harold: *A History of Tropical Medicine*, Baltimore, Williams & Wilkins Company, 1939.

CONFERENCES ON THERAPY

TREATMENT OF BLOOD DISORDERS

I. IRON THERAPY

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of the Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors. The next report will concern "Treatment of Blood Disorders: II. The Use of Iron and Other Metals."

DR. EUGENE F. DU BOIS: The conference today is the first of a series on the treatment of blood disorders. We hope that the plan of pursuing through several sessions a topic of limited scope will result in a more comprehensive discussion of the subject and perhaps also permit more time for informal discussion. We begin with iron therapy, and Dr. Warren will discuss the metabolism of iron with special reference to the red blood cells and hemoglobin.

THE METABOLISM OF IRON

DR. CHARLES O. WARREN JR.: We shall start by recalling the structure of the hemoglobin molecule, which, as you will remember, is made up of a "heme" part consisting of four substituted pyrrol groups and an atom of iron all linked together and combined with the protein globin. Apparently the body can synthesize the hemoglobin molecule from groups even simpler than the pyrrol nuclei, but under any ordinary conditions there is no lack either of these or of the constituents necessary for the synthesis of globin. Iron is more commonly the part of the molecule which is not present in adequate amounts in the diet, and we are concerned here with obtaining an understanding of the precise circumstances under which such a deficiency may arise. This should not imply that the body needs iron only for hemoglobin formation, for this element is an essential component of certain respiratory enzymes and other biologically active substances as well; but of the total iron in the body such a small amount is present in these forms that we can safely limit our discussion to the iron requirements of the body for hemoglobin formation.

I shall now merely enumerate some of the important points with respect to iron metabolism:

Iron is absorbed largely in the upper part of the small intestine. It is excreted almost entirely in the feces, though there is a very small loss in the urine. The iron in the stools represents that which has not been absorbed plus a fraction which may have been excreted into the intestine. The size of this latter fraction, and indeed its very existence, is by no means definitely established. It is clear however that, if normal males are kept for long periods of time on diets that contain very little iron, they excrete minimal amounts and appear to establish a balance between iron intake and excretion. The loss of iron from the body of normal males (but not females, as we shall see) as the result of endogenous metabolism is accordingly very small indeed and is covered by diets which are unusually low in iron.

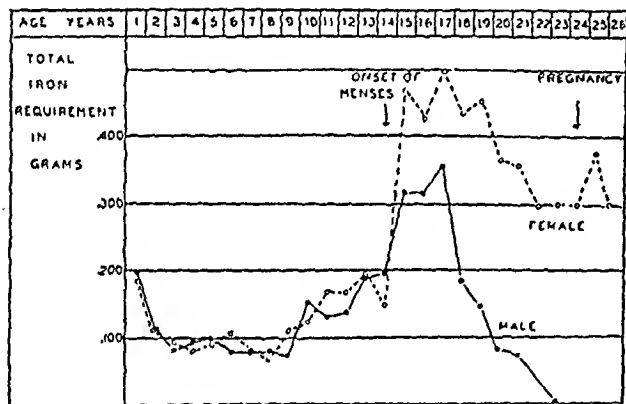
Iron in any form is utilized for hemoglobin synthesis. The most complete studies indicate that, when there is a demand for hemoglobin, injected iron is utilized nearly completely for its synthesis. Even hemoglobin

itself, if given parenterally, is utilized almost quantitatively, but if given by mouth very much larger amounts are necessary, it is so poorly absorbed.

Despite evidence to the contrary in the case of the dog and the rat, I think the evidence is good that in man ferrous salts are absorbed more readily than ferric salts or iron in any other form. This has been a source of considerable confusion. There appears to be no special virtue in organic combinations of iron in the diet.

Gastric acidity favors the preservation and even the formation of ferrous ions and also prevents the formation of insoluble iron compounds, particularly ferric phosphate. The importance of free hydrochloric acid in the stomach from the practical standpoint is questionable, however. Cases of hypochromic anemia associated with achlorhydria are not cured more readily as a rule by giving hydrochloric acid with the meals.

Iron is apparently transported in the plasma. This is a very small part of the total iron in the blood, and it represents a labile form of iron. It is comparable in iron metabolism to the blood sugar in carbohydrate metabolism; for example, on a high iron intake plasma iron will increase, and during active erythropoiesis, as



Iron requirement of human beings (Heath and Patek).

in recovery from pernicious anemia, the plasma iron will be lowered as it is withdrawn from the blood for hemoglobin synthesis.

Whether iron is utilizable for erythropoiesis by bone marrow in the form in which it is absorbed or whether the initial stages of hemoglobin synthesis occur in the liver is not known with certainty, although the latter view is generally held. Iron is not regarded as a bone marrow "stimulant."

The total iron content of the body is of the order of 4.5 Gm. Of this, the circulating hemoglobin contains somewhat less than 65 per cent; "latent iron" available for hemoglobin formation and stored principally in the liver, bone marrow and spleen comprises about 30 per cent, and tissue iron, which is unavailable for hemoglobin formation, about 5 per cent. The fact that of the total iron in the body about 65 per cent is circulating in the blood and that about half as much is available to supply more hemoglobin if necessary checks with the clinical experience that a patient can lose about half the circulating hemoglobin and replace it from the reserves without the necessity for iron administration.

The iron requirement of an individual depends primarily on two factors, age and sex, and because of this I think it is important to diagram the requirements for the different ages and sexes in man. The chart shown is reprinted from a review article by Heath and

Patek in *Medicine*. The requirements have been calculated from data and assumptions stated in the original text.

The ordinate represents the annual iron requirement in grams, the abscissa the age in years. In infancy, after the first few months of life, the amount of iron that has to be added to the body decreases because growth is less rapid than initially, and at the age of about 4 years it reaches a steady level. This level means not that there is no additional requirement for iron but that the requirement is relatively constant at about 100 mg. a year. In adolescence the growth rate increases very rapidly, and during that period there is a large increase in the amount of iron that is necessary. With men, who reach adult size, we may assume, at about 21, the requirement then approximates zero since they lose so little of the iron which has already been absorbed into the body. This applies to normal men.

With women, on the other hand, the menstrual losses beginning in adolescence increase the requirement as compared with that of men. About 20 mg. of iron is required for each menstrual period, which represents the amount of iron lost in the blood of the menstrual flow. Growth falls off naturally, but the iron requirement owing to menstruation persists at the level of about 300 mg. a year until, say, the age of 45 years, when it too will decrease nearly to zero. Each pregnancy will constitute a special demand on iron metabolism which is only partially compensated by the amenorrhea, and a rise in the curve to nearly 400 mg. a year may be expected.

One can see from this chart at what ages one may expect to find iron deficiency anemias, namely during adolescence, when the chlorosis type of anemia used to be seen frequently, and in women of the age group from 20 to 45 years, particularly if numerous pregnancies have drained their stores of iron.

DR. DU BOIS: We could have a few questions at this point.

DR. PAUL REZNIKOFF: How does iron act? Why is it necessary in the body?

DR. WARREN: It is necessary in largest amounts as an integral part of the hemoglobin molecule, and it is its presence in the molecule that confers on hemoglobin the ability to transport oxygen. Hemoglobin iron is in the ferrous form, both in reduced and in oxygenated hemoglobin; the transportation of oxygen is therefore not associated with valence changes in the iron atoms. Much smaller amounts of iron are present in muscle hemoglobin and in the hemin respiratory catalysts, of which cytochrome is an example, but its action in the latter substances depends on its ability to be alternately oxidized and reduced—to alternate reversibly between the ferrous and ferric forms. A large part of the total oxygen consumption (cellular respiration) of most body cells depends on this catalytic action of iron. In view of its importance in the cell economy, it is not surprising to learn that iron in this form is retained in the cells even when there is an excessive demand for hemoglobin iron. The same is true of muscle hemoglobin.

DR. EPHRAIM SHORR: Does infection do anything to iron metabolism?

DR. WARREN: It has been found that cases of iron deficiency anemia do not respond well to iron therapy during a coexisting infection. This poor response is ordinarily interpreted as due to a "toxic" condition of

the bone marrow, but in order to establish this it would be necessary to show that iron absorption is not affected by the infection, and so far as I know such studies have not been made.

DR. SHORR: What do you mean when you say that the iron requirement in the adult male approximates zero?

DR. WARREN: Theoretically, if there were no iron loss there would be no need for iron in the diet. Actually, there is a very small but continuous loss of iron in the urine and there may also be a small excretion into the intestine. But these losses are apparently made up even with diets designed to contain as little iron as possible.

DR. DU BOIS: But that will not even let you cut your finger, will it?

DR. WARREN: That is true, and a good sized nose-bleed would constitute a real setback.

DR. WALTER MODELL: If a man does not excrete any iron after the age of 25, what happens to all the iron he ingests in his diet?

DR. WARREN: After he has built up his reserve supply of iron he comes into iron balance. He excretes an amount equivalent to that which he ingests.

DR. DU BOIS: Have you in your head the approximate figure as to how many pregnancies a woman could have on an iron deficient diet without exhausting her reserves of iron?

DR. WARREN: Heath and Patek give 375 mg. as an approximate figure representing the iron requirement for a pregnancy. Taking 1.3 Gm. as the reserve iron in the body available for hemoglobin formation, this would be pretty well exhausted by three or four pregnancies if none was absorbed from the diet during this time.

DR. MCKEEN CATTELL: Is there definite evidence that those iron reserves are drawn on when there is need in relation to the hemoglobin supply?

DR. WARREN: Yes, as I say, it is common experience that patients can lose practically half the hemoglobin in the blood and then restore their blood hemoglobin level on an ordinary diet without the addition of iron.

DR. HARRY GOLD: There is also the fact that iron is of no value in acute hemorrhage but is of value in chronic hemorrhage, when the reserves are presumably exhausted.

DR. CATTELL: Is there no way of getting at the level of those reserves in the patient? The information would be useful as an indication of the existing factor of safety in relation to the likelihood of anemia developing.

DR. WARREN: There is no practical way for patients.

DR. REZNIKOFF: That work has been done on animals; the organs have been analyzed under various conditions of iron depletion, and it has been definitely shown that iron stores are drawn on to replace the acute hemoglobin loss in hemorrhage.

DR. GOLD: Do I understand rightly that iron deficiency anemia does not result in a man when his diet is free of iron?

DR. WARREN: It has not been practical to test this point directly by placing individuals for prolonged periods on diets that are entirely free of iron, except in starvation experiments. In these cases there is a

negative iron balance but this is interpreted as due to the breakdown of tissue cells. Certainly it is true that "idiopathic hypochromic anemia" is a disease of women and that men with hypochromic anemia are almost invariably found, on careful history and examination, to be suffering from some condition other than a mere insufficiency of iron in the diet. At any rate, the statement occurs in the literature that iron deficiency anemia cannot be produced in the normal adult who has no blood loss whatever.

DR. WILLIAM H. SUMMERSON: That, of course, is open to a good deal of experimental criticism.

DR. DU BOIS: I wonder if you would care to discuss that further.

DR. SUMMERSON: I have made some calculations from the chart Dr. Warren has shown, in which the iron requirement drops down to zero. That would be based, of course, on a study of iron intake. If a human being is put on a milk diet I think most people would admit he is under the condition of absolute minimum iron intake with otherwise adequate amounts of the various components of the diet. The iron content of milk is variable, but I should say it is about 0.5 mg. per liter. Suppose a person drinks 2 quarts of milk a day for a year: he is getting in each 2 quarts of milk 1 mg. of iron, and over a period of a year he is getting 365 mg. of iron. That will introduce an element of uncertainty with regard to the absolute minimal amounts of iron that I think would completely nullify the value of this type of study. I don't know whether that was taken into account when that chart was constructed, but it seems to me that an absolute minimal annual intake of iron amounting to 365 mg. of iron would preclude the possibility of saying that the adult human being does not require any iron.

DR. WARREN: That statement was based on the fact that, when patients were placed on as low an intake of iron as could reasonably be given, the lowest being 0.9 mg. a day, no negative iron balance could be demonstrated. They excreted just as much iron as was consumed in the diet.

DR. SUMMERSON: But those facts practically nullify the conclusion indicated by the chart.

DR. WARREN: One must remember that the patient has to be kept in nutritional balance in other respects than iron and that, if a person is starved, then there is a negative iron balance. But the iron excreted under those conditions apparently comes from tissue cells that are broken down and utilized for food during starvation. I think, however, the point you make is well taken, that actually the critical experiments have not been done to establish an absolute zero requirement.

CLINICAL ASPECTS OF IRON THERAPY

DR. DU BOIS: We will go on to the second part, "Clinical Aspects of Iron Therapy and the Choice of Preparations," by Dr. Reznikoff.

DR. PAUL REZNIKOFF: The use of iron in anemia has been clarified to a considerable extent by recent work, but unfortunately the profession at large is still somewhat in the dark as to when to use iron or, more correctly, when to expect an alleviation of the anemia from the use of iron.

Dr. Sabin, in an article on the bone marrow in *Physiological Reviews*, has traced the development of the red blood cell from its earliest stage in the bone marrow to its entrance into the blood stream. At the time when the red blood cell is introduced into the

circulation, the hemoglobin content is at a maximum; this suggests that the amount of hemoglobin in the red blood cell is a factor in determining when the cell is old enough to carry out its functions. In the anemias caused by iron deficiency the problem is to provide the red blood corpuscle with an adequate supply of hemoglobin; and, as Dr. Warren has shown, in most cases that means iron.

When is iron therapy indicated? The answer is, whenever there is a deficiency of iron. Clinically there are relatively few conditions in which iron deficiency occurs, but those few are important. In the first place a deficiency results if iron is lost from the body, as in conditions characterized by chronic hemorrhage. Normally the iron in the blood which is released by disintegration of the red blood cells is used again by the bone marrow; but when there is bleeding a certain amount of iron is lost to the body economy and there is a nutritive defect in the bone marrow so far as iron is concerned. In the second place there is a deficiency if the supply is inadequate. As Dr. Warren has pointed out, the supply is deficient whenever the intake is not high enough to keep the person in positive balance. It stands to reason that, if a child is growing, the child needs iron; if a woman is losing iron through menstruation she needs iron more than if she did not menstruate; and if a woman is pregnant and is supplying iron to the fetus she needs more iron than before she was pregnant. So in the last analysis the question as to whether the intake is inadequate depends entirely on the demand.

That brings up your question again, Dr. Gold, as to whether an iron deficiency anemia could be produced by cutting down on the iron intake of a man who had no hemorrhages. Under those conditions a negative iron balance is rarely observed, and anemia characterized primarily by iron deficiency hardly ever occurs. What is the evidence for that? In Bellevue Hospital we have patients who have been living on coffee and rolls, or coffee and doughnuts, for one, two, three or more years. They come into the hospital with a deficiency disease, such as pellagra or scurvy, but they have practically no anemia. Although they have been on a low iron intake for a great many years, they have very little iron deficiency. So iron deficiency due to faulty ingestion is present only when there is also an increased physiologic demand for iron. Thus the usual clinical types of iron deficiency anemia are the anemias seen in growing children, menstruating women, pregnant women and bleeding patients. An iron deficiency anemia is described in women of the menopausal age, but as Heath and Patek have shown, if those patients are examined carefully they are found almost invariably to have some blood loss.

Should iron be given in acute hemorrhage? As an emergency measure it is certainly not indicated, because in acute hemorrhage there is loss of blood volume and fall in blood pressure, and the problem is really that of circulatory shock. As a matter of fact, it has been shown that after sudden hemorrhage in an otherwise normal person who has sufficient stores of iron, it is not really necessary to give iron at any time. After the hemorrhage has stopped, within a period of several weeks to several months, the red blood cells and hemoglobin will gradually attain their normal level. Iron administration in chronic hemorrhage is of course another matter.

Are there any other conditions in which iron should be given? Well, it is used in almost every type of

anemia; in fact, most physicians give iron whenever a patient is anemic, and some even use it in pernicious anemia, I think, for no very good reason. Patients who are anemic as the result of chronic infection often receive iron, but this cannot be justified because there is no increase in iron utilization in these cases until the infection subsides, in all probability, because of the depression of the bone marrow. The same is in general true of neoplastic diseases. However, iron sometimes does prove useful in neoplastic disease but that is only when there is chronic hemorrhage in addition to the neoplasm. Again, in chronic nephritis iron is of no use because in this condition there is evidence that we are dealing with a depressed bone marrow, and the only function of iron therapy would be to replace the iron lost in the red blood cells in the urine.

There is a type of anemia called idiopathic hypochromic achlorhydric anemia, which practically always occurs in women. Nearly all give a history of excessive menstrual bleeding, so it is merely the same problem of a loss of blood producing an iron deficiency anemia. But there are undoubtedly a few patients who show but little evidence of blood loss—in fact there may be scanty menstruation—and who still have anemia. Those few patients apparently do well if hydrochloric acid is added to the iron therapy, and they will also have to receive larger amounts of iron than are effective in the ordinary, so-called "iron deficient" person. These cases represent only a small proportion of the patients with so-called idiopathic hypochromic achlorhydric anemia; I want to stress the fact that they are rare. The majority of patients with the achlorhydric type of anemia will absorb iron perfectly well without addition of hydrochloric acid.

I should like to bring up this question of hydrochloric acid now. You may well ask: If hydrochloric acid plays an important role in the absorption of iron, why do not pernicious anemia patients with achlorhydria have iron deficiency anemia? We know they don't. From this we must conclude that only a small proportion of patients with low gastric acidity need hydrochloric acid to facilitate the absorption of iron.

When we give iron how do we know it is effective? By changes in the red blood cell count, in the amount of hemoglobin and also in the reticulocyte count. These changes may be charted as the so-called biologic curve of iron response. Incidentally, the curve is the same for the response of the blood to the administration of liver in pernicious anemia. I should like to illustrate this response by the following experiment: A rat born of a mother which has been on a milk diet for a long time is weaned and put on a milk diet. At birth the rat's blood shows about 3,400,000 red blood cells per cubic millimeter and a little over 6 Gm. of hemoglobin per hundred cubic centimeters. As the young rat continues on the milk diet, the anemia increases, and down go the red count and the hemoglobin percentage, but the reticulocyte count, which is relatively high in the rat, persists at a fairly definite level of between 20 and 25 per cent. However, if iron is given after about the fourth day there is a rise in reticulocytes, which reaches its peak between the fifth and tenth days; this peak may be as high as 40 per cent. The red cell count and hemoglobin begin to rise rather rapidly, so that about three weeks after the beginning of iron therapy, in this case 1 mg. of iron a day, the red cell count and hemoglobin are nearly normal. That is the usual response to iron administration.

How can one tell that iron therapy is going to prove effective? It takes at least two or three weeks to get a really good rise in red cells and hemoglobin. Within a few days after starting the administration of iron, one should follow the reticulocyte count closely, since it early gives a clue as to whether iron therapy will be effective. A rise in the reticulocyte count is always followed by a rise in the level of the red cells and hemoglobin. Furthermore, there is an inverse ratio between the initial hemoglobin level and the reticulocyte peak; in other words, the lower the initial hemoglobin the higher the reticulocyte peak will be within a week after the onset of iron therapy. For example, if a patient has a hemoglobin level of 3.1 Gm. to begin with, one may expect a reticulocyte count of 13 or 14 per cent at the time of the peak; and if the patient starts with a fairly high hemoglobin of 9.3 Gm., the reticulocyte count would be expected to rise only to about 5 per cent. The reticulocyte response is reliable and early evidence hematologically of the impending efficacy of iron therapy. Those types of hypochromic anemia which fail to improve with iron therapy (cases with infections, nephritis, cancer) also fail to show a reticulocyte response to the administration of iron.

How much of a hemoglobin rise can we expect? Here again the rise is inversely proportional to the initial hemoglobin value. If the patient has an initial value of, let us say, 7.5 Gm., which we call 50 per cent of normal, or less than that, we should expect an increase during a three weeks period of an average of at least 1 per cent of hemoglobin daily. In some cases the rate of increase is as high as 2 per cent a day, depending on the dosage of iron and the type of iron used, as I shall show presently. If, on the other hand, the hemoglobin is above 50 or 60 per cent, one would be satisfied with an increase of about 0.5 per cent of hemoglobin a day measured over a three weeks period. These figures are fairly accurate. It is surprising perhaps that the rate of hemoglobin increase should be so mathematical because a considerable proportion of the iron administered may not be transferred directly into hemoglobin but may be stored. The only time you get a quantitative conversion of the entire dose of iron into hemoglobin is when you give it parenterally to patients with anemia. This procedure is unpractical, unnecessary and undesirable in nearly all cases.

THE CHOICE OF PREPARATIONS

Before we take up the relative merits of the different iron products, I want to show you some data assembled from our own clinical studies and those of others, which give some idea of this problem.

Table 1 shows a group of iron products. It does not by any means cover all the different kinds, but there is represented a ferric product, iron and ammonium citrates, and several ferrous products. One type which I have not included is reduced iron, which is metallic iron. I should like to point out that the things one has to take into account in judging the efficacy of an iron preparation include the route of administration, the dosage of iron, the initial hemoglobin level, whether above or below approximately 50 per cent, and the average daily hemoglobin rise over a period of three or four weeks. In most cases after about thirty days of treatment one can calculate the percentage of the iron administered which has been converted into hemoglobin. You see in the table that for the iron and ammonium citrates only about 2 per cent of all the iron given has been converted into hemoglobin. If

you examine some of the ferrous compounds you observe a much larger percentage utilization of iron. Certain ferrous products regularly yield more than 15 per cent utilization. Of course, the greater the dosage the less the percentage utilization; that is obvious because most of it is excreted in the feces. So when only 108 mg. of iron a day was given as ferrous gluconate, the utilization was 37 per cent; but when the dose was doubled the utilization was 17 per cent, or not quite half.

What preparations of iron do we use? Ferrous sulfate, in the form of 0.18 Gm. tablets, is the one we use most frequently in this institution. Each tablet contains between 60 and 65 mg. of iron. Then we have the ferric salt, iron and ammonium citrates, which is put up either in capsules or in 50 per cent solution. We have also a great array of products put up in solutions and in pretty looking pills. There is one which is nothing but ferrous sulfate, a little more expensive because it is pink; and there is one combined with a copper salt, which capsule should not be on the market as an adult medicine. Then we have a product which

TABLE 1.—Relative Efficacy of Various Iron Compounds*

Compound Used	Daily Iron Dosage, Gm.	Initial Hemo-globin, per Cent	Num-ber of Cases	Average Daily Hemo-globin Rise, per Cent	Average Time Before Hemo-globin Rise, Days	Utiliza-tion of Iron, per Cent
Ferrous sulfate.....	0.180	<50	12	1.175	30	15.70
Ferrous sulfate.....	0.120	>50	3	0.630	33	13.00
Iron and ammonium citrates.....	1.215	<50	30	1.270	..	2.50
Iron and ammonium citrates.....	1.215	>50	3	1.030	..	2.03
Ferrous carbonate...	0.110	<50	6	0.935	..	20.80
Ferrous carbonate...	0.110	>50	3	0.520	..	11.30
Ferrous carbonate...	0.220	<50	8	0.803	..	8.80
Ferrous carbonate...	0.220	>50	1	0.180	..	1.96
Ferrous carbonate...	0.330	<50	10	1.125	..	8.18
Ferrous carbonate...	0.330	>50	3	0.940	..	6.84
Ferrous chloride.....	0.132-0.108	<50	4	1.420	..	20.70
Ferrous chloride.....	0.132-0.108	>50	3	1.000	..	14.50

* 14.5 Gm. = 100 per cent hemoglobin.

is supposed to contain vitamin B₁₂, for no good reason at all in my opinion.

Why use ferrous salts? In the first place, as you have heard, the ferrous iron is better absorbed. In the second place, which is very important clinically, it is more easily tolerated in most cases. It does not upset the gastrointestinal tract so readily. Patients receiving iron are apt to complain of vague distress or "indigestion," diarrhea or sometimes constipation. In general the ferrous salts tend to cause less irritation than the ferric.

What about the dosage of iron? I think it is wise in giving a drug which may upset the patient to follow this principle: Start with a small dose and build it up gradually. For example, I plan to give ferrous sulfate, and I want to give the patient nine tablets, that is, about 560 mg. of iron, a day. Instead of starting with three tablets after each meal, I have the patient take one tablet after each meal, and then increase by one tablet a day, so he gets 1-1-1, 2-1-1, 2-2-1, 2-2-2 until the intake reaches 3-3-3, that is, three tablets after each meal. That I think is a good general plan.

Should iron ever be given by injection? Well, "ever" is a big word. I don't know. I should say that I have never myself seen a case or heard of a

case in which iron should be given by injection. Iron has to be given over a long period of time, for about a month at least. Suppose you stick a needle into a patient every day for a month. Although you will all agree it is not pleasant, you will say it is being done constantly with insulin and epinephrine. But the case of iron salts is different: Here you are giving a product which may be quite irritating and may cause necrosis. Even the ferrous compounds, which are relatively nontoxic, may be irritating under some conditions. Furthermore, there is practically no contra-indication to giving iron by mouth, and even patients who have ulcer, or colitis with diarrhea, can take it in this manner. If anything, iron is a styptic, and there should be no hesitation in giving iron by mouth even in a case of bleeding gastric ulcer; at least, I don't hesitate to give it, and I am sure that most physicians feel there is no danger entailed.

I want to speak briefly about the measures for promoting the absorption and utilization of iron. We have mentioned the administration of hydrochloric acid and certain qualifications regarding its use. Then there is the question of other metals, which we shall discuss at length later, but I should like to say here that copper may aid in the utilization of iron under certain special conditions, at least so far as infants are concerned. Practically, it is unimportant because we get all the

TABLE 2.—Percentage of Iron Appearing as Hemoglobin
Iron Compound

	Daily Dose	
	400 Mg.	40 Mg.
Ferrous sulfate	4.7	29.0
Ferric ammonium citrate, green.....	4.5	28.0
Ferric citrate sesquies.....	5.5	32.0
Reduced iron	3.7	24.5

copper we need in our food, and even as impurities in iron. The liver extract made by Whipple, which is precipitated in 70 per cent alcohol, apparently has an effect in increasing the formation of hemoglobin. How it acts, we don't know. This is not the same product that is used in pernicious anemia. It may also be noted that bile pigment and chlorophyll have been recently shown to aid materially in the production of hemoglobin.

What about food iron? You will read lists of iron-containing foods such as cocoa shell, tea leaf, dried yeast, cocoa as purchased, apricots, egg yolk, liver, oatmeal and spinach, but who wants to eat tea leaves and coffee grounds? One needs to know not only the percentage of iron in these foods but how much iron there is in a portion of food that the patient eats. If you calculate the absolute quantity of iron in an average portion ingested by the patient, then the list of foods runs in a slightly different order: fresh liver, fresh spinach, dried apricots, boiled chicken, fresh lamb, egg yolk, tuna fish, canned and dried prunes, lean beef, canned tomatoes and oatmeal. When you want to prescribe a high iron diet you must determine how much of a particular food the patient is going to eat.

DISCUSSION OF QUESTIONS

DR. DU BOIS: We are now ready for questions.

DR. GOLD: Does iron ever cause an increase in hemoglobin without showing a reticulocyte response first?

DR. REZNIKOFF: I cannot answer that question because in the majority of cases reticulocyte counts are

not performed. There are a few cases of pernicious anemia which with liver extract therapy show good red blood cell formation without any reticulocyte response to speak of. Those cases of iron deficiency anemia which we have studied carefully and in which we have done daily reticulocyte counts have always shown a rise in reticulocytes, but fewer patients with iron deficiency anemias have been studied in this way than with pernicious anemia.

DR. JANET TRAVELL: I should like to return to the question of the relative effectiveness of ferrous, ferric and metallic iron. I wonder whether the behavior of animals and of human beings is fundamentally different with respect to the various forms of iron. I noticed in table 1 that the dosage of the ferric salt, the iron and ammonium citrates, was from four to ten times greater with respect to the amount of iron that was given than for any of the ferrous salts. In this connection the figures are of interest that were obtained by Whipple and Robschey-Robbins in their experiments on standard dogs rendered chronically anemic by repeated bleeding. This is the best experimental subject which we have had for the purpose of studying iron deficiency anemia. They found that the percentage of iron appearing as hemoglobin on large and small dosages of iron given by mouth was as shown in table 2. They concluded that all forms of iron are utilized with equal facility by the dog to produce hemoglobin. The determining factor is the dose of iron. This applies not only to iron salts but also to most forms of food iron.

The clinical studies are the ones that are quoted as showing that ferrous iron by mouth is better utilized than ferric iron, and in these studies as a rule equal amounts of iron in the ferric and ferrous forms were not given. When relatively larger quantities of ferric than of ferrous iron were used, the consensus was that no significant difference in the results of the two forms of iron therapy as to blood regeneration was obtained. In all these studies the dosage of iron is relatively large, and it is quite likely that a maximal hemoglobin response was obtained with both forms of the metal. There is a paucity of clinical studies in which identical amounts of iron are given in the ferrous and the ferric forms. A study recently reported by Schlutz, Morse and Oldham was carried out with anemic infants to whom was given 100 mg. of iron either as ferrous sulfate or as ferric and ammonium citrates; when equal amounts of ferric and ammonium citrates; when equal amounts of iron were given under identical conditions the ferrous was found to be no more efficacious than the ferric salt. The experiments of Moore and his collaborators seem to point in the opposite direction, namely that ferrous iron is better absorbed than ferric iron. They suggest, however, that diarrhea might occasionally interfere with the absorption of the more irritant ferric salts.

DR. GOLD: May I just mention the fact that Dr. Reznikoff's table seems to me to afford a good basis for the inference that there is no difference in the utilization of ferric and ferrous iron. When 1.2 Gm. of iron was given as ferric ammonium citrate about 2 per cent was utilized, or 24 mg. of iron. When 330 mg. was given in the form of ferrous carbonate, as much as 8 per cent was utilized, or 26 mg. of iron; when a smaller dose of ferrous carbonate was given, 110 mg. of iron a day, as much as 20 per cent was utilized, or 22 mg. of iron. The fact that substantially the same absolute amount was utilized when different amounts were presented to the body indicates that in all cases the doses were probably much too large and

if a difference did exist in the power of the body to utilize iron from these different sources, these experiments would fail to show it. Don't these figures bear out what Dr. Travell has just said?

DR. TRAVELL: As a basis for comparing the effectiveness of the different iron products, the absolute amount of iron rather than the percentage of the dose utilized for new hemoglobin would seem to be the best criterion.

DR. REZNIKOFF: One thing known from clinical experience is that if you do not give large doses of ferrie iron, from 1 to 1.5 Gm. of iron a day, you get practically no results. When we used to give from 100 to 250 mg. of iron as reduced iron or as the ferric salt, we got little hemoglobin response, whereas with no more than 500 mg. of ferrous iron a day we obtain satisfactory utilization. In other words, the trouble with ferric salts and with reduced iron is that the dose in man must be considerably greater than with ferrous iron. In the old days when chlorosis was treated with very small doses of iron it was fortunate that ferrous carbonate was used. Then the dose of iron was 5 mg., and good results were obtained, but it was a ferrous salt.

DR. CATTELL: To complete the discussion of the relative effectiveness of ferrous versus ferric salts, I should like to bring up one more point, that is whether the ferric salt would not be converted into the ferrous form before absorption, since iron is largely absorbed in the duodenum, and whether that might not be an answer to the question.

DR. REZNIKOFF: I think most people agree that no iron is absorbed until it is changed to the ferrous state. That is my impression from the literature.

DR. CATTELL: Under those circumstances does it still make sense that from a therapeutic standpoint the ferric iron should be less effective than the ferrous iron?

DR. REZNIKOFF: From the standpoint of animal experiments it is obviously not less effective, but as I have said when we give very small doses of ferric iron to patients we get little rise in hemoglobin.

DR. TRAVELL: Isn't it true that there may be considerable variation in the response to iron therapy and that some hypochromic anemias fail to respond to relatively small doses even of ferrous iron? Fullerton reported that not all of his cases of hypochromic anemia responded to treatment with ferrous sulfate.

DR. REZNIKOFF: How big was the dose?

DR. TRAVELL: About 150 to 250 mg. of iron.

DR. REZNIKOFF: That is a relatively small dose. Most of us try to give 500 mg. to the adult anemic patient, but we have had excellent responses with as little as 100 mg. of iron a day. On the basis of Minot's figures and our own experience, I am sure that 500 mg. of iron in the form of ferric iron would not cause very much rise in hemoglobin. You have to run the dose of ferric iron up to almost 1 Gm. a day. Practically, the whole question is not very important because we have a cheap form of iron in ferrous iron. We know that it upsets patients much less and that a smaller dose is effective.

DR. TRAVELL: That is true.

DR. CATTELL: I wonder, Dr. Reznikoff, whether it would not be worth while to have a little further discussion of your criteria of dosage and what factors lead you to increase the amounts given. If you do not get

the expected response from the routine dose, do you increase the amount; and if so, to what extent?

DR. REZNIKOFF: It is hard to answer that without taking an individual case. Let us suppose we give a patient 500 mg. of iron a day as ferrous sulfate, and, if she has achlorhydria, we give her hydrochloric acid too, 4 or 5 cc. with each meal. If she does not respond within an adequate time, certainly within three weeks and probably within two weeks, I should try to increase the dose at least 100 mg. of iron a day, probably more.

DR. GOLD: Up to what dose would you go?

DR. REZNIKOFF: Up to the limit of tolerance; in other words, until she begins to get some gastrointestinal upset. I have rarely reached the limit of tolerance, so I do not know what that is except as determined by the individual case.

DR. CATTELL: What dose do you consider adequate for a therapeutic test?

DR. REZNIKOFF: The majority of patients with iron deficiency anemia should respond to about 500 mg. of iron a day in the form of ferrous sulfate. That would be adequate for most patients.

DR. CLAUDE E. FORKNER: I think Heath and his associates stated that the optimal dose for the average adult patient with iron deficiency anemia was 0.8 Gm. of ferrous sulfate daily. In some cases much smaller doses will be effective, in others larger; but that was considered by Heath to be the optimal dose, and that was equivalent to about 6 Gm. of iron and ammonium citrates a day.

SUMMARY

DR. DU BOIS: We can see from the discussions that the subject of iron therapy involves many controversial issues and that to some of the fundamental questions there are no positive answers. Certain points concerning the metabolism of iron are of direct importance in therapy. About 30 per cent of the body iron is present as reserves and this is called on to restore a deficiency in the circulating hemoglobin. After an acute hemorrhage, therefore, iron administration is of little or no value because the body first calls on these stores. When they are used up, as in the case of chronic hemorrhage, iron therapy becomes efficacious in speeding up hemoglobin formation. The discussion has brought out the fact that in the course of normal metabolism of the adult male the loss of iron seems to be negligible. An iron deficiency in the male, therefore, suggests that some form of bleeding must be taking place. It is for this reason that iron deficiency anemias are much more common in females, who lose about 20 mg. of iron with each menstrual period and about 375 mg. of iron with each pregnancy. The experience appears to be that infection reduces the efficacy of iron therapy in restoring deficiency in hemoglobin, but the exact nature of the injury by infection is not understood. We have discussed the question of the value of hydrochloric acid in iron therapy. It is rarely necessary, although some patients appear to require hydrochloric acid to facilitate the utilization of iron. Patients with pernicious anemia have achlorhydria but are not likely to suffer from iron deficiency, while some patients with hypochromic anemia appear to regenerate hemoglobin faster when hydrochloric acid is given together with the iron therapy. We have had a discussion of the question of whether ferrous or ferric salts are superior in the treatment of anemia. There seems to be no complete agreement. There is some good evidence that ferrous salts are better utilized than ferric salts, but some of the

evidence on that point is open to criticism and in some of the studies the clinical efficacy of the two seems to be the same. If there are differences in the utilization of ferrous and ferric salts, it may be that their significance is largely lost in treatment, the doses of iron are so big by comparison with the amounts that are utilized. We need to keep an open mind on this question. There seems to be agreement that iron therapy should be given by mouth and that parenteral administration is rarely necessary. A plan for the use of iron in the treatment of anemia has been outlined. Adequate doses such as 500 mg. of iron a day to adults are likely to be associated with a reticulocyte response. This serves as an index of satisfactory reaction to iron therapy.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

VITAMIN E HAS BEEN CLAIMED TO BE OF VALUE IN THE TREATMENT OF A NUMBER OF VARIOUS DISORDERS, PARTICULARLY WITH REFERENCE TO ITS ALLEGED USEFULNESS IN HABITUAL ABORTIONS. THE COUNCIL ADOPTED THE FOLLOWING REPORT, WHICH WAS PREPARED FOR IT BY THE REFEREE, AND AUTHORIZED PUBLICATION.

PAUL NICHOLAS LEECH, Secretary.

THE TREATMENT OF HABITUAL ABORTION WITH VITAMIN E

Several clinical observers have presented evidence within the last eight years that the administration of vitamin E may enable women who have had repeated abortions to give birth to living children. This evidence, on superficial examination, appears to be good. It is my chief purpose in the present report to subject the evidence to critical examination.

Vitamin E has also been used in the treatment of other disorders of the reproductive organs and of lactation in women.¹ As it seems possible that claims might be made for such uses of vitamin E, it becomes necessary to consider what evidence there is in support of the claims.

VITAMIN E IN THE TREATMENT OF VARIOUS DISORDERS

Involuntary Sterility in Women.—There is no convincing clinical evidence that the administration of vitamin E (wheat germ oil) will enable women with involuntary sterility to conceive (table 1).²

Disorders of Menstruation.—Juhász-Schäffer³ stated that he had administered vitamin E in 150 cases of dysmenorrhea without definite results. Shute⁴ states that he has relieved patients with dysmenorrhea provided their blood showed an increase of estrogenic substance, but he gives no other details.

Toxemia of Pregnancy.—Barrie⁵ claims to have produced "toxemias of pregnancy" in rats fed diets low in

vitamin E. The incidence of toxemia was higher (19 per cent) in animals partially deficient than in those wholly deficient (1.7-2 per cent) or in those receiving adequate amounts of vitamin E (2 per cent). Lesions were found in the liver and kidney resembling the lesions in women with toxemia. Shute⁶ found evidence for vitamin E deficiency in only one of eight women with toxemia.

Faulty Lactation.—Shute⁷ administered wheat germ oil during pregnancy to sixty women considered by him to be deficient in vitamin E; sixteen of these had an unusually abundant secretion of milk for from seven to ten days after parturition; five had scanty secretion; thirty-six were able to nurse their infants for at least three months. Of sixty women who were considered not to be deficient during pregnancy, seven had an unusually abundant secretion of milk, eighteen had a poor secretion and thirty-five were able to nurse for more than three months. Of twenty-three women who could not furnish more than 4 ounces (120 cc.) of milk a day, fifteen had had wheat germ oil during pregnancy. Lactation of six of the fifteen women followed the further administration of wheat germ oil. Two of the eight who had not had wheat germ oil until after delivery had successful lactation following the administration of wheat germ oil.

Vaginal Pruritus.—After the menopause, according to Shute,⁴ vaginal pruritus may be associated with excess of estrogenic substance in the serum. He has reported four cases in which relief followed the use of large daily doses of wheat germ oil.

TABLE 1.—Use of Wheat Germ Oil in Treatment of Involuntary Sterility

Author	Date	Number of Cases		Daily Dose
		Total	Successful	
Vogt-Möller ²	1933	5	3	3 Gm.
Watson and Tew ²	1936 (2d paper)	15	0	4 cc. and more

TABLE 2.—Expectation of Pregnancy Based on Number of Successive Abortions

Number of Successive Abortions	Number of Cases	Calculated Number of Cases with Abortions According to		Expectation of Pregnancy, per Cent
		Malpas	Author	
2	180	180	180	100
2	43	39	39	85
3	21	15	16	61.4
4	7	11	9	45.5
5	6	10	6	31.5
6	4	10	4	21.7

The formula of Malpas was modified by including the numerical factor which gives the probability of the occurrence of pregnancy.

While the results in case of deficient lactation and in vaginal pruritus are suggestive, it is obvious that much more observation and many more reports from other workers are needed before any claim can be permitted for the value of vitamin E in their treatment.

Before considering the use of vitamin E for the prevention of "habitual abortion," it is necessary to call

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2. Vogt-Möller, P.: Treatment of Sterility and Habitual Abortion with Wheat Germ and Wheat Germ Oil, *Acta obst. et gynec. Scandinav.* 13: 219, 1933. Watson, E. McB.: Clinical Experiences with Wheat Germ Oil (Vitamin E), *Canad. M. A. J.* 34: 134 (Feb.) 1936. Watson, E. McB., and Tew, W. P.: Wheat Germ Oil Therapy (Vitamin E) in Obstetrics, *Am. J. Obst. & Gynec.* 31: 352 (Feb.) 1936.

3. Juhász-Schäffer, A.: Das E Vitamin, *Ergebn. d. inn. Med. u. Kinderh.* 45: 129, 1933.

4. Shute, Evan: Vaginitis and Vulvitis Associated with an Excess of Estrogen in the Blood, *J. A. M. A.* 110: 889 (March 19) 1938.

5. Barrie, M. M. O.: The Effect of Vitamin E Deficiency in the Rat, *J. Obst. & Gynaec. Brit. Emp.* 46: 49 (Feb.) 1939.

6. Shute, Evan: The Early Diagnosis of Abruptio Placentae and Its Treatment with Wheat Germ Oil, *Am. J. Obst. & Gynec.* 33: 427 (March) 1937.

7. Shute, Evan: Wheat Germ Oil Therapy: III. Rat Experiments. Lactation, Clinical Uses, "Failures" and Effects upon Congenital Anomalies, *Am. J. Obst. & Gynec.* 35: 810 (May) 1938.

attention to the frequency of occurrence of abortions of all types, to the difficulties which naturally exist in ascertaining the frequency of occurrence of the various types of abortion—spontaneous and induced—and, finally, to the lack of published statistics on the frequency of "habitual abortion."

Taussig⁸ states that 2,400,000 living infants are born in the United States each year and estimates that in each year 682,000 abortions occur. It is impossible to ascertain with any certainty how many abortions are spontaneous and how many are induced. Plass,⁹ analyzing the replies of eighty-one Iowa physicians to a questionnaire, found that, while 51,000 deliveries occurred, there were 10,000 abortions, of which 76 per cent were induced. Brunner and Newton¹⁰ report that 3,216 women had 10,609 pregnancies with 2,897 abortions, of which 42 per cent were induced. Simons¹¹ reports that 40.6 per cent of 995 abortions treated in the hospital were induced. Kopp¹² has published an analysis of 10,000 case histories of women studied by the Birth

Habitual abortion is defined by Bishop¹⁴ as premature delivery on more than one occasion before the fifth month of gestation not due to discoverable disease, organic cause or artificial induction. He found habitual abortion in only eleven (0.41 per cent) of 2,687 pregnant women. Malpas¹⁵ believes that repeated abortion may occur in 1 per cent of all pregnancies. Taussig⁸ and Kopp¹² make no estimate of the frequency.

Taussig states (p. 102) in regard to the etiology of spontaneous abortion: "In this country, where all the needed constituents of a well balanced diet are obtainable, dietary deficiencies probably do not play a very great part in abortion, except in domestic animals." This view is beyond doubt the prevalent one. The recent publication of a number of observations claiming the cure of repeated abortion by treatment with wheat germ oil therefore deserves critical analysis.

If the effect of measures proposed for the prevention of repeated abortion is to be studied critically, it is necessary to have a definition of repeated abortion and

TABLE 3.—Frequency of Abortion *

Abortions	2 Pregnancies				3 Pregnancies				4 Pregnancies				5 Pregnancies				6 Pregnancies			
	N	Frequency			N	Frequency			N	Frequency			N	Frequency			N	Frequency		
	210	Obs.	f1	f2	172	Obs.	f1	f2	136	Obs.	f1	f2	95	Obs.	f1	f2	57	Obs.	f1	f2
0.....	160	0.7308	0.7308	0.7308	111	0.6433	0.6433	0.6433	81	0.5932	0.5960	0.5951	42	0.4424	0.4420	0.4432	27	0.4740	0.4740	0.4740
1.....	45	0.2052	0.2052	0.2064	49	0.2840	0.2841	0.2850	39	0.2866	0.3130	0.2865	31	0.3266	0.3760	0.3337	15	0.2632	0.3770	0.2643
2.....	14	0.0640	0.0640	0.0640	7	0.0407	0.0415	0.0416	6	0.0441	0.0620	0.0560	16	0.1685	0.1390	0.1298	5	0.0871	0.1250	0.0853
3.....	..	..	..	..	5	0.0291	0.0291	0.0291	7	0.0515	0.0054	0.0236	3	0.0316	0.0230	0.0473	6	0.1052	0.0220	0.0550
4.....	..	..	..	..	..	..	..	..	3	0.0221	0.0220	0.0362	1	0.0105	0.0019	0.0271	2	0.0351	0.0019	0.0638
5.....	..	..	..	..	..	..	..	..	..	..	..	..	2	0.0211	0.0211	0.0063	2	0.0351	0.0001	0.0392
6.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	0	0	..	0.0101
b.....	..	..	0.045	0.0640	..	..	0.027	0.027	..	..	0.022	0.0623	..	..	0.021	0.1294	..	..	0	0.2025
p.....	..	..	0.124	0.1164	..	..	0.1280	0.1283	..	..	0.1166	0.1074	..	..	0.1475	0.1273	..	..	0.117	0.0835
p'.....	..	..	1	0.855	..	..	1	1	..	..	1	0.876	..	..	1	0.546	..	..	1	0.606

* N indicates number of cases; f1, frequency of abortion (Malpas formula); f2, frequency of abortion (original formula); b, proportion of women subject to frequent abortions; p, probability of abortion in women of group; p', probability of abortion due to chance.

Control Clinic Research Bureau of New York City. She believes that the number of induced abortions acknowledged by these women is probably too low but is likely to be nearer the truth than in the case of women entering the hospital for obstetric treatment. It should be pointed out, however, that many of the women sought advice for contraception, a fact which might indicate previous more or less successful attempts at abortion. Kopp found that 9,583 women had had 38,985 pregnancies, resulting in 11,172 abortions, of which 72 per cent had been induced. Whitehouse¹³ in England reports that 3,000 women had had 11,430 pregnancies with 17.2 per cent abortions. He did not attempt to ascertain how many of the abortions had been induced. The data of the American authors just quoted show that about 28 per cent of all pregnancies terminate in abortion and that of 25,064 abortions 65 per cent were induced; therefore 9.8 per cent of all pregnancies resulted in noninduced abortion. Possibly about 240,000 noninduced abortions occur each year in the United States. Unfortunately the American reports fail to give adequate details regarding the frequency of repeated abortions.

necessary to know what results might be expected without treatment. No adequate studies of this sort exist. Malpas, in an analysis of abortion sequences based on the data of Whitehouse, remarks that in the great majority of cases abortion occurs but once and must therefore be due to chance. He presents a calculation to show that a nonrecurrent or "chance" cause for abortion occurs in 17 per cent of all pregnancies and that a recurring cause for abortion occurs in 1 per cent of all pregnancies. Examination of his argument, however, indicates that he ignored the fact that the expectation of pregnancy decreases with successive pregnancies. If this fact is taken into account, it can be shown that a "chance" cause occurs in 16 per cent and a repeated cause in 2 per cent of pregnancies (table 2). The assumption in these calculations is that in a certain small proportion of pregnant women abortion will inevitably occur; in them the probability of abortion, p', is equal to 1. A detailed consideration of the original data of Whitehouse will show that a better approximation of theory to the data is afforded by the assumption that in about 7.8 per cent of all pregnancies there is a probability of abortion not equal to unity but to 0.84, whereas in the remainder there is a probability of abortion of p = 0.116.

Table 3 present the data, together with the theoretical results; the table is so constructed as to show in columns N the number of women with no, one, two, three, four,

8. Taussig, F. J.: Abortion, Spontaneous and Induced, St. Louis, C. V. Mosby Company, 1936.

9. Plass, E. D.: Personal communication to Taussig.

10. Brunner, E. K., and Newton, Louis: Abortions in Relation to Viable Births in 10,609 Pregnancies, *Am. J. Obst. & Gynec.* 38:82 (July) 1939.

11. Simons, J. H.: Statistical Analysis of 1,000 Abortions, *Am. J. Obst. & Gynec.* 37:840 (May) 1939.

12. Kopp, Marie E.: Birth Control in Practice, New York, Robert M. McBride & Co., 1934.

13. Whitehouse, Beckwith: Address on Abortion: Its Frequency and Importance, *Brit. M. J.* 2:1095 (Dec. 14) 1929; in discussion on the Causes of Early Abortion and Sterility, *Proc. Roy. Soc. Med. (Sec. Gynec. & Obst.)* 23:241 (Dec.) 1929.

14. Bishop, P. M. F.: Studies in Clinical Endocrinology: "Habitual Abortion"; Its Incidence and Treatment with Progesterone or Vitamin E, *Guy's Hosp. Rep.* 87:362 (July) 1937.

15. Malpas, Percy: A Study of Abortion Sequences, *J. Obst. & Gynec. Brit. Emp.* 45:932 (Dec.) 1938.

five and six abortions; the women having two, three, four, five and six pregnancies are considered separately. The observed frequency of abortion is shown in the columns headed "Obs." The theoretical frequency of abortion, calculated according to the assumption of Malpas that $p' = 1$, is given in column f_1 . The row marked b indicates the proportion of women subject to "habitual abortion." In the theory now

TABLE 4.—Predicted Frequency of Consecutive Abortions

		Number of Consecutive Abortions					
		1	2	3	4	5	6
I. Malpas's original calculation	F	0.18	0.0393	0.01501	0.01086	0.0106	0.01003
	R	0.055	0.254	0.665	0.920	0.945	0.995
	C	70.2	61.8	27.7	6.5	1.5	
II. Malpas's revised calculation	F	0.152	0.0450	0.03156	0.02064	0.02963	0.02960
	R	0.195	0.663	0.940	0.992	0.997	0.999
	C	70.4	29.6	6.4	0.7	0.2	
III. Present theory	F	0.1729	0.06758	0.01685	0.03936	0.02292	0.02780
	R	0.373	0.813	0.990	0.995	0.999	1.000
	C	70.9	30.5	16.3	16.2	15.0	

F, predicted frequency of consecutive abortions; R, proportion of habitual abortions among all abortions; C, per cent of "spontaneous cure" of women who have had indicated number of consecutive abortions. For Malpas's original calculations, $p = 0.17$, $p' = 1$, $b = 0.01$. The weighted averages of the constants in table 2 were used for the other calculations; For Malpas's revised calculations, $p = 0.126$, $p' = 1$, $b = 0.6293$. For the present theory, $p = 0.1164$, $p' = 0.843$, $b = 0.6777$.

being considered, b indicates the proportion of women who would inevitably abort. The values of b and p were calculated by the methods of the theory of probability in such a way that theory and observation agreed for the frequencies of no abortion and of abortions for every pregnancy. It will be observed that the agreement is good in case of two and three pregnancies. This, however, is an inevitable consequence in case of two or three pregnancies and therefore does not prove the correctness of the theory. In case of four, five and six pregnancies the agreement between predicted and actual frequencies is poor. In particular, the actual frequency of more than three abortions often exceeds the theoretical frequency. This discrepancy can in part be

TABLE 5.—Use of Wheat Germ Oil in Prevention of Repeated Abortion

Author	Date	Cases	Successful Results	Daily Dose
Vogt-Möller.....	1931	2	2	5 cc.
"....."	1934	20	17	"Fertilan" 3 Gm.
"....."	1936	52	38	"Fertilan" 3 Gm.
Juarez-Schmitt.....	1933	2	2	?
Currie.....	1935	37	34	3 minims (0.2 cc.)
Watson and Tew.....	1936	47	34	1 to 6 cc.
Bishop.....	1937	2	1	"Fertiol" 3 capsules
Cromer.....	1938	4	2	?
Malpas.....	1938	9	2	?
Total.....		175	132	

"Fertiol" and "Fertilan" are commercial preparations of wheat germ oil. The quantity of "Fertiol" in three capsules was not stated.

obviated by adopting another theory: that the probability of abortion (p') is somewhat less than unity in a proportion of women (b). In order to calculate p , p' and b according to this theory, the assumptions were made that the theoretical and observed frequencies of no abortion and one abortion should agree and that the total expectancy of abortion in any group should be that calculated from theory. In this way the frequencies and constants in column f_2 were calculated. It is evident that the agreement between observed and calculated values of the frequencies is good.

The weighted means of the constants may be used to predict the probability of consecutive abortions in a sufficiently large group of women. These calculations are presented in table 4. This table shows the predictions both for the original theory of Malpas (I), his revised theory (II) and for the theory presented here (III). In all the theories the probabilities decrease rapidly at first. According to the theory of Malpas the frequency becomes nearly constant after three successive abortions but according to the other theory the frequency decreases indefinitely. According to either theory there is therefore a tendency for a certain calculable proportion of women to "recover" from repeated abortion.

Although the accuracy of the results is open to criticism because of the small number of cases on which the results are based, and although the general applicability of the particular frequencies may be questioned, a few important conclusions may be drawn: 1. The diagnosis of habitual abortion is not justified until a woman has had at least two consecutive abortions. This is indicated by the numbers in the rows marked R. These numbers are the ratios of the frequencies of "habitual abortion" to total abortions and show that after two or three consecutive abortions nearly all the women in the

TABLE 6.—Relationship Between Number of Previous Abortions and Results of Treatment with Wheat Germ Oil

Number of Previous Abortions	Number of Cases	Successful Results	Per Cent Successful Results
1.....	14	10	71
2.....	71	51	72
3.....	32	24	75
4.....	31	26	84
5.....	21	16	76
6.....	2	2	100
Not stated.....	3	3	100
Total.....	174	132	75

group are subject to "habitual abortion." Since artificial induction and organic disease account for more than 65 per cent of all abortions, these causes must be excluded in the definition of "habitual abortion." 2. Although the diagnosis of repeated abortion might have been made in from 4.5 to 6.8 per cent of the cases considered in this analysis, it seems likely that at least 2.9 per cent of the women were liable to repeated abortion and possible that 7.7 per cent may have been subject to a probability of abortion as great as 0.84. 3. There is a marked tendency to spontaneous cure of repeated abortion. For example, if a woman has had two consecutive abortions, the chances are about 1 to 3 that she will not have another.

The results claimed in the treatment of 175 cases of repeated abortion collected from the literature are presented in tables 5 and 6. The results would seem at first glance to be favorable, for relief of habitual abortion in 75 per cent of cases is indeed a result much better than one would expect without treatment. The greatest objection to accepting the reported results as actual cures lies in the uncertainty of diagnosis of habitual abortion. As I have already demonstrated, the occurrence of a single spontaneous abortion does not establish the diagnosis, and the expectancy in such a case that the next pregnancy will not result in an abortion is about 70 per cent. Even after two successive pregnancies have resulted in abortion there is an expectancy of no abortion in the next pregnancy of about

30 per cent. The reported success of treatment after three successive abortions have occurred is much more impressive. But here one has to consider the possibility that some or even all the abortions had been induced. The authors have been able to furnish satisfactory evidence in only about half of the cases in question that the abortions were spontaneous. There are two important reasons for the lack of this information. First, habitual abortion is infrequent. Consequently, those who are interested in its treatment have included in their reports not only their own cases but also the cases

TABLE 7.—Increased Antitryptic Activity of Serum (Shute)

	Normal Preg- nancy	Miscarriage		Prematurity		Abruptio Pla- centae
		Spon- taneous	Induced	Spon- taneous	Induced	
Number.....	128	26	3	50	5	82
Per cent with increase..	8	77	33	62	60	78

of practitioners to whom they have furnished wheat germ oil. Second, the reported cases have not often been observed at the time of previous abortions. It seems quite possible that a number of the women may have had abortions induced and later, desiring an infant, may have sought medical advice.

Another difficulty in obtaining evidence of the effect of vitamin E in the prevention of habitual abortion lies in the lack of any exact knowledge of the outcome in the absence of treatment. We have attempted to predict what might be expected, but this prediction is based on a calculation from data admitted to be somewhat inaccurate. Before any claim for the specific effect of vitamin E in the prevention of repeated abortion can be accepted, more exact predictions of the expectancy of spontaneous cure are necessary.

A third difficulty in accepting the published results arises because of the extraordinarily varied amounts of wheat germ oil used by the various observers and because frequently no data are available to prove that the oil was potent.

DOSAGE

The daily dose of wheat germ oil used by five of the authors mentioned in table 5¹⁶ varied from 0.25 to 6 cc. In spite of this variation, the apparent success of treatment was the same. Shute believes that the requirements of pregnant women for vitamin E may be even larger than those already stated and has often given as much as 45 cc. of wheat germ oil a day for two weeks; in one case, 90 cc. was given. Shute bases this belief on his observation that the serum of women who have spontaneous abortion, premature labor and abruptio placentae frequently shows abnormally high antitryptic activity (table 7).¹⁷ He ascribes this to an

excess of estrogenic substance. According to him¹⁸ the excessive antitryptic activity of the serum prevents normal penetration of the fetal villi into the maternal decidua, with resulting interference with fetal nutrition or even premature separation of the placenta with hemorrhage. He⁶ states that sufficient doses of potent wheat germ oil will relieve the symptoms of abruptio placentae in most cases within twenty hours, provided the condition is due to deficiency of vitamin E as indicated by the test for antitryptic activity. He gives illustrations of this but no further data. Although the theory might explain the pathogenesis of vitamin E deficiency in women and would afford a laboratory test for the presence of deficiency, it must be pointed out that no other workers have reported data to confirm it. Cooper¹⁹ believes that Shute's test furnishes a reliable index of the estrogenic content of the serum but gives no data. Cuthbertson and Drummond²⁰ question the reliability of Shute's method²¹ for demonstrating antitryptic activity; they are unable to find an excess of antitryptic activity in the serum of rats with vitamin E deficiency; they used as controls rats receiving adequate diet and diet with excessive amounts of wheat germ oil. The studies were carried out both with Shute's original method and with a viscosimetric method. If much smaller doses of wheat germ oil are really effective in the prevention of threatened abortion (table 8) than those, according to Shute, necessary to reduce the antitryptic activity of the serum, the theory must be questioned.

STABILITY OF VITAMIN E

The potency of wheat germ oil in vitamin E not only is variable but diminishes rapidly at room temperature. For this reason Shute recommends that the pressed oil should be kept in the refrigerator and not be used if more than 8 weeks old.²² Unfortunately no practical methods of assay exist. For these reasons it is difficult to ascribe some of the reported successful results in the treatment of habitual abortion and threatened abortion to vitamin E, especially when used in small doses. The production of synthetic vitamin E and of a more stable acetate²³ may provide investigators with substances that can be used in a critical study of the problems under discussion.

TABLE 8.—Threatened Abortion

Author	Year	Number	Successes	Daily Dose
Currie ¹⁶	1937	15	14	25 cc.
Watson ¹⁶	1936	19	13	12 cc. and over

UNFAVORABLE EFFECTS OF WHEAT GERM OIL

Those who advocate the use of small doses of wheat germ oil have reported no ill effects. Shute²² states that the continuous administration of the oil up to the beginning of labor did not delay labor in sixty cases or prolong it in ten cases in which it was given during

16. Authors mentioned in table 5:
Vogt-Möller, P.: Treatment of Habitual Abortion with Wheat Germ Oil, *Lancet* 2: 182 (July 25) 1931.
Vogt-Möller, P.: Die Behandlung des habituellen Aborts mit Weizenkeimöl (E Vitamin), *Klin. Wchnschr.* 15: 1883 (Dec. 19) 1936.
Juhász-Schäffer, J.
Currie, D. W.: Vitamins in Cases of Habitual Abortion, *Lancet* 2: 1464 (Dec. 28) 1935.
Watson and Tew.
Bishop.
Cromer, J. K.: Wheat Germ Oil (Vitamin E) in the Treatment of Repeated Abortion, Spontaneous and Threatened, *M. Ann. District of Columbia* 7: 145 (May) 1938.

17. Shute, Evan: The Relation of Deficiency of Vitamin E to the Antiproteolytic Factor Found in the Serum of Aborting Women, *J. Obst. & Gynaec. Brit. Emp.* 43: 74 (Feb.) 1936; Observation on the Etiology of Abruptio Placentae and Its Response to Vitamin E Therapy, *ibid.* 44: 121 (Feb.) 1937.

18. Shute, Evan: Resistance to Proteolysis Found in the Blood Serum of Aborting Women, *J. Obst. & Gynaec. Brit. Emp.* 42: 1071 (Dec.) 1935; Is Estrin Cause of Resistance to Proteolysis Found in Blood Serum of Aborting Women, *ibid.* 42: 1085 (Dec.) 1935.

19. Cooper, William: Test for Blood Estrone, *Brit. M. J.* 1: 1056 (May 20) 1939.

20. Drummond, J. C.: Criticism of Shute's

21. Properties of Human Blood Serum in Cases of Miscarriage and Premature Labor, *J. Obst. & Gynaec. Brit. Emp.* 44: 253 (April) 1937.

22. Shute, Evan: Wheat Germ Oil Therapy: II. Preservation of Potency, Influence on Labor, Seasonal Needs, *Am. J. Obst. & Gynec.* 35: 609 (April) 1938.

23. Isler, O.: Die Stabilisierung von d, l-alpha Tocopherol, *Helvet. chim. acta* 21: 1756, 1939.

the first stage of labor. He has observed irritation of the gastrointestinal tract and rash in only six cases.²⁴ The danger of production of neoplasms²⁵ appears to be nonexistent (Day, Becker and McCollum;²⁶ Evans and Emerson;²⁷ Dingemans and van Eck²⁸).

CONCLUSIONS

Claims that vitamin E (wheat germ oil) is of value in the treatment of menstrual disorders, failure of lactation and the vaginal pruritus after the menopause cannot be accepted because of lack of sufficient clinical evidence.

The claim that vitamin E is of value in the prevention of habitual abortion cannot be accepted because of the lack of convincing clinical evidence. The diagnosis of habitual abortion in many of the published reports is open to question; the great variation in dosage of vitamin E and the lack of evidence that the preparations used were active make it difficult to attribute any effects claimed for it to the vitamin. Moreover, the expectancy of spontaneous cure in cases of so-called habitual abortion has not been accurately established.

Although the administration of wheat germ oil probably does not cause the development of neoplasms, unfavorable effects may follow its use in certain cases. These effects are usually not serious.

The published results of the treatment of habitual abortion with vitamin E are sufficiently encouraging to justify further clinical experiment. Such experiments are justified only if preparations of vitamin E of known activity are used and if adequate diagnosis and clinical control can be established.

Strong Memorial Hospital.

REPORT OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.
PAUL NICHOLAS LEECH, Secretary.

SNAKE VENOM SOLUTION (MOCCASIN) (Lederle Laboratories, Inc.) NOT ACCEPT- ABLE FOR N. N. R.

In 1935 the Council published a preliminary report on Snake Venom Solution (Moccasin) of the Lederle Laboratories, Inc., which had been submitted for consideration as useful in the treatment of hemorrhagic conditions.¹ The Council found the status of the preparation promising but felt that more adequate evidence was desirable for further consideration. In 1939 the Lederle Laboratories, Inc., called the attention of the Council to the fact that twelve papers on the subject had been published since the Council's report, ten containing evidence for its therapeutic use and two dealing with an intradermal test and the action of the venom on capillary walls.

The Council considered a report of the referee on the later literature. Allergic conditions and hemophilia were excluded as not meriting further consideration. The referee's report abstracted the later literature as follows:

Functional Uterine Bleeding.—Twenty-four cases were considered in the previous report. Goldberger and Peck² reported

good results with the treatment of seventeen of a total of twenty patients. However, these seventeen included twelve whose cases were considered in the first report. Davin and his associates³ administered venom to fifty-one patients and compared the results with those seen on fifty patients who served as controls. They stated that the results were encouraging but that much work remained to be done before the venom could be recommended in every obstetric case.

Idiopathic Epistaxis.—Five cases were considered in the first report; Dack⁴ reported the two cases of himself and a colleague in the hospital; Goldman⁵ reported forty-two cases (including the two reported by Dack) and stated that the venom was effective in arresting or diminishing the amount and frequency of bleeding in practically all cases. Dack was slightly more conservative.

Multiple Hereditary Telangiectasis (Osler's Disease).—Four cases were reported to the Council. Peck, Rosenthal and Erf⁶ reported that the results of the venom test were negative but that two patients showed some improvement with continued treatment with venom.

Thrombocytopenic Purpura Haemorrhagica.—Sixteen cases were considered in the first report. Greenwald in 1935⁷ reported the treatment of three patients with the venom, and in 1938⁸ he reported that these three had remained well and that active bleeding had been stopped in four others treated subsequently.

Tidy¹⁰ applied the venom of Russell's viper locally—not by injection—in three cases, with reported satisfactory results.

Peck, Rosenthal and Erf in 1936¹¹ used venom intradermally as a prognostic test in essential thrombocytopenic purpura; they injected the venom subcutaneously in thirty-four cases of chronic purpura haemorrhagica, with apparently good results in twenty-two. These investigators in 1937¹² injected venom which had been titrated on the chicken embryo by the method of Witelsky, Peck and Neter¹³ intradermally as a test for the fragility of capillaries and stated that the test is helpful in the management of thrombocytopenic purpura, in which it is a guide to local, general and toxic capillary changes. They⁶ classified purpura with special reference to the selection of cases for treatment with venom and reiterated that its effectiveness had been proved during the previous five years.

Rosenthal,¹⁴ who had previously published several papers with Peck and his associates on the use of venom, reviewed the history of 153 cases of thrombocytopenic purpura and classified them according to age, causation and course of the disease. He stated that spontaneous recovery occurred in 38 per cent of acute cases in all age groups. The referee's analysis of the table indicates that 80 per cent of those under 20 years of age (84 per cent if a case of drug idiosyncrasy is included) recovered "spontaneously." The meaning of the term "spontaneous" used in that paper is not clear, since the 153 cases under discussion included the fifty previously reported to the Council

3. Davin, E. J.; Spielman, Frank, and Rosen, J. A.: Effect of Moccasin Snake Venom (Ancistrodon Piscivorus) on Parturient and Puerperal Bleeding, *Am. J. Obst. & Gynec.* **33**: 463 (March) 1937.

4. Dack, Simon: Treatment of Intractable Nasal Hemorrhage by Injections of Moccasin Snake Venom, *J. A. M. A.* **105**: 412 (Aug. 10) 1935.

5. Goldman, J. L.: Moccasin Snake (Ancistrodon Piscivorus) Venom Therapy for Recurrent Epistaxis, *Arch. Otolaryng.* **24**: 59 (July) 1936.

6. Peck, S. M.; Rosenthal, Nathan, and Erf, L. A.: Purpura: Classification and Treatment with Special Reference to Treatment with Snake Venom, *Arch. Dermat. & Syph.* **35**: 831 (May) 1937.

7. Different terminologies are employed by different investigators; the referee uses that which the investigator employed in a given case, even though it appears inconsistent at times.

8. Greenwald, H. M.: Dilute Snake Venom for the Control of Bleeding in Thrombocytopenic Purpura, *Am. J. Dis. Child.* **49**: 347 (Feb.) 1935.

9. Greenwald, H. M.: Thrombocytopenic Purpura: Nonsurgical Treatment, *New York State J. Med.* **38**: 1391 (Nov. 1) 1938.

10. Tidy, H. L.: Treatment of Hemorrhagic Diseases, *Brit. M. J.* **1**: 850 (April 25) 1936; 895 (May 2) 1936.

11. Peck, S. M.; Rosenthal, Nathan, and Erf, L. A.: The Value of the Prognostic Venom Reaction in Thrombocytopenic Purpura, *J. A. M. A.* **106**: 1783 (May 23) 1936.

12. Peck, S. M.; Rosenthal, Nathan, and Erf, L. A.: Intradermal Venom Reaction: A New Method of Determining Capillary Fragility, *Proc. Soc. Exper. Biol. & Med.* **35**: 614 (Jan.) 1937.

13. Witelsky, Ernst; Peck, S. M., and Neter, Ervin: Demonstration of Hemorrhagins in Snake Venom by Means of the Chicken Embryo, *Proc. Soc. Exper. Biol. & Med.* **32**: 722 (Feb.) 1935.

14. Rosenthal, Nathan: The Course and Treatment of Thrombocytopenic Purpura, *J. A. M. A.* **112**: 101 (Jan. 14) 1932.

24. Shute, Evan: Wheat Germ Oil Therapy: I. Dosage-Idiosyncrasy, *Am. J. Obst. & Gynec.* **35**: 249 (Feb.) 1938.

25. Rowntree, L. G.; Steinberg, Arthur; Dorrance, G. M., and Ciccone, E. F.: Sarcoma in Rats from the Ingestion of a Crude Wheat Germ Oil Made by Ether Extraction, *Am. J. Cancer* **21**: 359 (Nov.) 1937.

26. Day, H. G.; Becker, E. J., and McCollum, E. V.: Effect of Ether Peroxides in Wheat Germ Oil on Production of Tumors in Rats, *Proc. Soc. Exper. Biol. & Med.* **40**: 21 (Jan.) 1939.

27. Evans, H. M., and Emerson, G. A.: Failure to Produce Abdominal Neoplasms in Rats Receiving Wheat Germ Oil Extracted in Various Ways, *Proc. Soc. Exper. Biol. & Med.* **41**: 318 (June) 1939.

28. Dingemans, E., and van Eck, W. F.: Wheat Germ Oil and Tumor Formation, *Proc. Soc. Exper. Biol. & Med.* **41**: 622 (June) 1939.

1. Snake Venom Solution Moccasin (Lederle), Preliminary Reports of the Council, *J. A. M. A.* **104**: 1073 (March 30) 1935.

2. Goldberger, M. A., and Peck, S. M.: Additional Data on the Treatment of Uterine Bleeding with Snake Venom, *Am. J. Obst. & Gynec.* **33**: 469 (March) 1937.

with which venom was used. In "two typical" cases detailed there is no mention of the use of venom or other drug.

Rosenthal stated that no medical treatment can be regarded as specific; that venom and transfusion are the only acceptable palliatives in chronic thrombopenic purpura, and that venom, which is only palliative, was not responsible for all the improvement which followed its use. He recommends splenectomy in all chronic cases because of the danger of temporizing and because it is curative in the majority of such conditions. He holds that splenectomy is contraindicated in some acute cases and that venom is of diagnostic value. One feels that this paper is somewhat more conservative than some of the earlier ones.

Splenectomy.—It is necessary to consider this subject briefly because its relative value has a direct bearing on the usefulness of venom. Whipple¹⁵ stated that of eight splenectomies performed in the acute stage of thrombocytopenic purpura haemorrhagica seven proved fatal but that there were only six deaths following splenectomy in seventy-three chronic cases. Of sixty-one splenectomies which could be followed the results were good in fifty-one, fair in four and poor in six. This does not take account of the six deaths in the seventy-three cases just mentioned.

It is usual to classify these cases of purpura as acute and chronic, but Rosenthal¹⁴ stated that it is sometimes difficult to predict at the outset whether the disease is of the acute or chronic form. Brown and Elliott¹⁶ stated that the efforts of surgeons to divide thrombocytopenic purpura into acute and chronic have resulted in much confusion. Brown and Elliott stated that the available evidence indicates that the operative mortality is from 13 to 14 per cent in the acute stage and from 5 to 6 per cent in the chronic. The low figures are to be expected only in carefully selected cases with adequate preparation for operation by experienced surgeons.

Andrus and Holman¹⁷ reported the results in fifty splenectomies performed during five years at the New York Hospital. They reported no operative death in seventeen cases of congenital hemolytic jaundice, in twelve of thrombopenic purpura, in two of atypical purpura haemorrhagica, and in eight of Banti's syndrome. The results in the seventeen cases of chronic hemolytic purpura had been followed for periods of from three months to five years. Two patients died; the results were good in fourteen cases and fair in one. The results were good in eleven of the twelve cases of chronic thrombopenic purpura; one patient died after five months. The results were good in four of the eight cases of Banti's syndrome, fair in two and poor in one, and one patient died after two years. The authors stated that the attempt to extend splenectomy beyond the three favorable conditions—congenital hemolytic jaundice, thrombopenic purpura and Banti's syndrome—are attended with higher mortality and disappointing results.

The paper of Andrus and Holman was discussed by Whipple and by Paul Reznikoff. Whipple stated that he had reviewed the cases reported by the authors, the results of which were much like his own at the Presbyterian Hospital in New York; that it seems miraculous to see purpura disappear in from five to ten minutes after splenectomy, and that the term "Banti's syndrome" covers a certain amount of ignorance. Reznikoff stated that thrombopenic purpura gives hematologists a great deal of trouble; that it is often difficult to differentiate it from other diseases; that even necropsy does not always reveal the patient's trouble, and that physicians urge splenectomy after they have reached the end of their rope.

Vaughan and Wright¹⁸ observed six patients for periods of from ten to fifteen years following splenectomy for purpura haemorrhagica; all continued to be free from bleeding phenomena; the best results followed splenectomy when the preoperative diagnosis of recurring idiopathic purpura haemorrhagica was unequivocal. It is significant that they could find

records of only fifty-nine cases in which the results following splenectomy for this condition had been observed for more than five years, though the method had been in use for twenty-three years.

Schnierson, Lyttle and Peck¹⁹ found that venom in the dosage used did not prevent the recurrence of moderate urinary changes in nephritis (subclinical) in twenty-two cases of scarlet fever and that it gave no evidence of causing damage to the renal capillaries. They concluded, therefore, that therapeutic doses do not damage the normal capillaries of the body.

Rosenthal¹⁴ mentions three cases in which the intracutaneous injection of venom induced violent reactions. However, that method of administration is not generally used therapeutically. The previous report considered the frequent occurrence of hypersensitiveness to venom; this has been observed by all who have used it as Peck and his co-workers do. It is not usually a serious matter in the hands of one who is experienced in the use of venom, but a colleague in whose knowledge the referee has confidence holds that really serious reactions are not uncommon.

Brown and Elliott¹⁶ state that it has been 200 years since Werlhof described a case of purpura haemorrhagica; during that time the greatest advance in its treatment was that by splenectomy, and it seems only fair to conclude that further advances will be made in the near future with the better appreciation of the necessity for preoperative diagnosis based on detailed studies of the blood, and other factors, and with more complete statistics showing greater precision in the selection of cases which should be treated palliatively and those in which operation should be performed promptly.

Few deny that venom has some diagnostic and palliative value, but it is impossible at present to determine the extent and limitations of its use, because it is not known when palliative treatment involves greater risk than operation in certain cases. A large part of the literature which the referee has seen comes from Peck and his associates, and only a smaller part, so far as venom is concerned, comes from hematologists not in any way associated with Peck; surgeons appear to give venom scant attention for the conditions under discussion here.

A consultant of extensive experience with venoms has furnished the following statement:

It is difficult for me to give you a simple statement about moccasin venom. I have used it in about half a dozen cases. In at least four of the patients they have reacted with rather small doses to the venom so that at the site of injection their arms were swollen, red and painful. Desensitization of these patients I found to be impracticable because, after reaching a small dose such as 0.25 cc., they again developed local reactions.

My best result was obtained in a patient who had purpura, a bleeding time of twelve minutes, and a decrease in platelets. I was able to give him as much as 1 cc. of the moccasin venom and his bleeding time decreased from twelve to four minutes, but from April 1935 through January 1937 he received moccasin venom in 1 cc. doses as often as three times a week and his bleeding time would fluctuate throughout this period from four to more than fifteen minutes, regardless of the dosage. His last platelet count, taken on March 9, 1939, was 30,000. In view of the fact that I could not consistently keep this man from spontaneous hemorrhage and increased bleeding time, I do not feel that the moccasin venom could be considered a specific palliative reagent.

This subject is further complicated by spontaneous remissions, and in conclusion all I can say is that I do not feel that I am justified in using this venom with any assurance that it would be more effective than any other nonspecific treatment or transfusions. If I had to pass judgment on this for the Council, I would state that its acceptance should still be held up until better proof is obtained for its palliative efficacy.

As a result of the consideration of the referee's abstract and the consultant's statement, the Council reached the following conclusions: (a) that Snake Venom Solution (Moccasin) (Lederle) is not acceptable for New and Nonofficial Remedies because the scope of its usefulness and its limitations have not been established satisfactorily and because its use tends to delay the resort to splenectomy, which is known to be curative in a large percentage of cases of chronic involvement—a delay which may result in death; (b) that the general employment therapeutically of Snake Venom Solution (Moccasin) before its scope and limitations have been determined would do more harm than good and is not in the best interests of the public.

The Council informed the Lederle Laboratories, Inc., of its decision and of its willingness to reconsider when new evidence of the value of the product becomes available.

15. Whipple, A. O.: Splenectomy as a Therapeutic Measure in Thrombocytopenic Purpura Haemorrhagica, *Surg., Gynec. & Obst.* 42: 329 (March) 1926.

16. Brown, D. N., and Elliott, R. H. E.: The Results of Splenectomy in Thrombocytopenic Purpura, *J. A. M. A.* 107: 1781 (Nov. 28) 1936.

17. Andrus, W. deW., and Holman, C. W.: Splenectomy in Various Blood Disorders, *Ann. Surg.* 109: 64 (Jan.) 1939.

18. Vaughan, S. L., and Wright, Thew: Purpura Haemorrhagica, with Special Reference to Permanence of Remission Following Splenectomy, *J. A. M. A.* 112: 2120 (May 27) 1939.

19. Schnierson, S. S.; Lyttle, J. D., and Peck, S. M.: Effect of Moccasin Venom on Urinary Changes in Scarlet Fever, *Am. J. Dis. Child.* 52: 796 (Oct.) 1936.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 1, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

FAT TRANSPORT IN THE ANIMAL BODY

The mechanisms provided for the transport of various food materials in the blood and across cellular barriers depend on the nature of the foodstuff. While amino acids and the simpler carbohydrates are generally soluble in water, fatty acids and most of their compounds are insoluble in an aqueous medium. For this reason the transportation of fat in the body presents a unique problem. In recent years research workers have resorted to novel methods, involving the use of fatty acids containing isotopes or radioactive elements in studies bearing on this problem; such methods have served to add considerably to our knowledge of the carriage of fat.

In a timely review Bloor¹ has summarized some of the more recent facts and ideas bearing on the problem

of the transport of fat in the body. With regard to the transfer of fat across the intestinal mucous membrane, it may be recalled that normally fat is completely hydrolyzed during its stay in the intestine. The splitting of fats into their constituent parts, glycerin and fatty acids, might be considered as the first stage of fat transport. Although the absorption of unhydrolyzed fat from the intestine under particular conditions has been reported occasionally, in the light of present evidence as regards normal intestinal behavior it seems unlikely that the intact fat molecule is normally absorbed as such. In the presence of bile the fatty acids are soluble in water and are readily absorbed. Microscopic and chemical studies indicate the resynthesis of fat within the intestinal mucosa. The observation that the phospholipids of the mucosa change their fatty acids during fat absorption to correspond to those being absorbed but do not change in amount has led Sinclair² to assume that the absorbed fatty acids are transformed into phospholipid as an essential step in the resynthesis of neutral fat.

Unlike the water soluble metabolites, which are transported to the liver from the intestine, in the main, by way of the portal system, the water insoluble fats are largely absorbed via the lymph and reach the blood indirectly. Whether or not any appreciable amount of fat is absorbed directly into the blood is still a disputed point. It has been reported, however, that there is an increase in the total fatty acids of the blood during fat absorption in animals in which the lymph of the thoracic duct is diverted by fistula. In any case the small fat particles present in the blood, which are recognized as fat in the process of transport, come mainly from the intestine by way of the chyle. Most of the fat absorbed from the intestine reaches the tissues in this form. The increase of phospholipid in the blood during fat absorption has been repeatedly reported, and its occurrence as part of the mechanism of fat transport is also generally accepted. The results of animal experimentation indicate that during fat absorption there is not only an increase in the neutral fat but also a definite, although comparatively small, increase in the phospholipid content of the thoracic lymph.³ Cholesterol is likewise involved in the carriage of fatty acids in the blood as well as in thoracic lymph. At least two thirds of the cholesterol of the plasma is combined with fatty acids as esters and about one fourth of the total fatty acids of the plasma is carried in the form of cholesterol esters. As Bloor, Blake and Bullen⁴ have pointed out, of the three main fatty acid compounds of blood plasma—neutral fat, phospholipid and cholesterol esters—the degree of unsaturation is

2. Sinclair, R. G.: Role of Phospholipids of Intestinal Mucosa in Fat Absorption, with Additional Data on Phospholipids of Liver, and Smooth and Skeletal Muscles, *J. Biol. Chem.* 82:117 (April) 1929.

3. Brockett, S. H.; Spiers, M. A., and Himwich, H. E.: Lipid Components of Lymph of Thoracic Duct of Dog, *Am. J. Physiol.* 130:342 (Dec.) 1934.

4. Bloor, W. R.; Blake, A. G., and Bullen, S. S.: Lipids of Blood Plasma in Hay Fever and Asthma: Unsaturated Fatty Acids in Fat, Phospholipid, and Cholesterol Esters, *J. Allergy* 9:227 (March) 1938.

1. Bloor, W. R.: Fat Transport in Animal Body, *Physiol. Rev.* 19:557 (Oct.) 1939.

found to be greatest for the cholesterol ester fatty acid, next for the phospholipid and lowest for the neutral fat. This might indicate a special function of cholesterol in relation to the metabolism of the unsaturated fatty acids of blood plasma.

It is believed that the liver takes an active part in fat transport. Just as it permits the temporary storage of carbohydrate and protein, so also may the liver act as a temporary storage place for fat when this food-stuff is being absorbed. However, under normal conditions the fat content of the liver does not change a great deal, since the fat which comes to this organ is ordinarily worked over rather promptly and moved elsewhere. Under certain experimental conditions, nevertheless, comparatively large quantities of fat accumulate in the livers of experimental animals, and investigations of this phenomenon have yielded information bearing on the problem of fat transport. As pointed out by Bloor,¹ the fact that choline, but not colamine, is an effective substance in the prevention and cure of certain types of fatty livers would indicate that the phospholipid lecithin, rather than cephalin, is the more important metabolic intermediate in the metabolism of fat in the liver and perhaps in the whole organism. The role of the liver in the formation of ketone bodies is also of interest in connection with the transport of fats, since the production of ketone bodies by this organ is presumably an important factor in the transport of fatty acid fragments on the way to combustion.

Many questions relating to the problem of fat transport yet remain to be answered. It is heartening, however, to note that an ever increasing amount of light is being thrown on this subject as the result of investigative activity. New means of tagging fatty acids and fatty acid compounds have been developed, and the tracing of these compounds in the body has been facilitated.

YELLOW FEVER

The demonstration by the United States Army commission in Cuba under Major Walter Reed of the transmissibility of yellow fever by the mosquito *Aedes aegypti* is a brilliant chapter in the annals of American medicine. Another pioneer contribution of the commission was the disclosure that the blood of a person afflicted with this disease carries the filtrable causative agent during the first few days of illness, whereas the sputum, feces, urine and vomitus of the patient are not infected. The last epidemic of yellow fever in the United States occurred in New Orleans in 1905. At present this dread disease little concerns the general public in this country. Despite its virtual disappearance from the United States, however, the malady continues to be interesting to the medical profession. Recently Bauer,¹ of the International Health Division of the Rockefeller Foundation, has reviewed its status.

For more than twenty years the Rockefeller Foundation has been an important factor in the control of yellow fever in a number of South American republics. During this time many contributions relating to the yellow fever problem have been made by medical men associated with this organization. Unfortunately there is no specific treatment for yellow fever. The strategy of the campaign against the disease has been complicated by the fact that yellow fever, as has been known for a number of years, exists in tropical forests in the absence of *Aedes aegypti* mosquitoes. As pointed out by Bauer, this "jungle yellow fever" is ordinarily restricted to lower animals and is only accidentally transmitted to human beings. Nevertheless, persons who do become infected with the disease, which does not differ essentially from *Aedes aegypti* borne yellow fever, may serve as a source of infection for *Aedes aegypti* mosquitoes on entering a community where these insects occur. The disease may then be further spread by the mosquitoes and an epidemic may be initiated. The Rockefeller Foundation has in recent years shifted its emphasis from temporary anti-*Aedes aegypti* mosquito campaigns to a program which includes not only the prevention of *Aedes aegypti* transmitted yellow fever through rigid control in urban areas but also prevention of jungle yellow fever, as far as possible, through vaccination of exposed persons.² Of the weapons for combating yellow fever which have been developed in the laboratory, there is none more effective than individual vaccination against this disease. The availability of vaccine of satisfactory protective strength is limited by the fact that the substance is labile and tests to determine its activity require special laboratory facilities. Nevertheless, vaccination continues to play a leading part in the control of yellow fever; hundreds of thousands of persons living in places where there is danger of infection have been immunized with yellow fever vaccine.

The development of air travel between the United States and South America has made it more difficult to prevent the introduction of yellow fever into the United States from regions where it is endemic. When the voyage from South America to the United States is made by boat, any yellow fever infection that may be present on board is usually detected en route. When port is reached, appropriate quarantine measures prevent the spread of the disease. Travel by airplane is so much less time consuming than travel by ship, however, that it is now possible for a newly infected person to come to the United States from South America and travel around in this country for two or three days before becoming ill. During the first few days of his illness he may infect *Aedes aegypti* mosquitoes, if they are present in his neighborhood, and an epidemic outbreak of yellow fever may result. Bauer points out that our Southern cities are still infectible, as shown by

1. Bauer, J. H.: *Pub. Health Rep.* 55:362 (March 1) 1940.

2. Fosdick, R. D.: *The Rockefeller Foundation, A Review for 1939, New York, 1940.*

recent epidemics of dengue fever, a disease which is transmitted from one person to another by *Aedes aegypti*, the same mosquito that transmits yellow fever.

Fortunately, officers of the U. S. Public Health Service are fully aware of the new problem presented by the air traffic with South America. Airplanes, like ships, are examined for mosquitoes, and persons who arrive by air or water and who are not in possession of vaccination certificates are kept under surveillance for the remainder of the incubation period. Moreover, the flying personnel of the air lines engaged in traffic with South America are vaccinated against yellow fever. Yellow fever has been banished from our shores for more than three decades. In view of the knowledge we now possess concerning its history, occurrence and control, and with the constant vigilance of officers of the U. S. Public Health Service at our ports of entry, we should be able to prevent a serious recurrence of the disease in the United States.

DIABETES IN PENNSYLVANIA

Strome and Blaine¹ have recently analyzed the trends in mortality from diabetes mellitus in Pennsylvania and in the United States Registration Area. The data for both the United States Registration Area and Pennsylvania were obtained from the Census Bureau reports. The study emphasizes the following facts: 1. Diabetes mortality rates are higher in the United States than in any other major civilized country. 2. Pennsylvania leads the United States with the highest mortality rates in the United States Registration Area. 3. Mortality rates from diabetes are increasing every year. 4. Numerically the recorded deaths from diabetes mellitus are increasing in the United States Registration Area and in Pennsylvania. From 1906 to 1937 the mortality rate from diabetes in the United States Registration Area increased from 12.7 to 23.7 per hundred thousand, an increase of 186 per cent. In Pennsylvania from 1906 to 1937 the mortality rate from diabetes increased from 10.5 to 31.2 per hundred thousand, an increase of 297 per cent. Great as is the increase in diabetes mortality rates in the United States Registration Area, that of Pennsylvania exceeds it by 110 per cent. At the same time the death rates from all causes in the United States Registration Area steadily declined from 1900 to 1938 and in the state of Pennsylvania from 1906 to 1938.

Paradoxical as it may seem, the introduction of insulin therapy has added to the incidence of mortality from diabetes. What has really happened is that the mortality has been shifted from the younger age to the older, for the increase is limited to ages 45 and over. Under the age of 45 there has been a marked lowering of the death rate, undoubtedly due to the introduction of insulin therapy. In addition to saving the lives of young persons with diabetes, insulin has the effect of prolonging the lives of adult and middle-aged diabetic patients.

Since, however, as Dublin once remarked, insulin does not confer immortality, these patients sooner or later succumb to the degenerative diseases of their age, such as pneumonia, cancer, arteriosclerosis and nephritis.

Another item of interest is that women after 35 show a greater increase in the death rate than men of the same age. At the ages of 35 to 44 the excess of the female death rate over that of the male is 26 per cent and it increases rapidly to 85 per cent at ages 45 to 54. The maximum disparity in mortality for the two groups, 115 per cent, occurs in ages past 55.

The chief lesson to be learned from this report is that diabetes today presents a serious and growing public health problem. It is tenth in the list of causes of death. According to Dublin² more women over 55 years of age die of diabetes than of tuberculosis. From 2 to 3 per cent of our present population will ultimately die of diabetes. The situation perhaps is not as alarming as might appear on first consideration. Both Joslin³ and Dublin believe that this increase is partly real and partly apparent. The apparent increase is due to the great extension of medical facilities and an earlier diagnosis. The discovery of insulin created a widespread interest in the disease. More physicians now look for the disease than ever before. Thus more cases are registered as deaths from diabetes rather than from some other cause as actually happened in the past. The real increase in the incidence of diabetes is, however, generally admitted. A definite answer as to the relative importance of the apparent increase and the real increase cannot be given at present. Joslin stresses overweight as the one most important factor in the real increase in the incidence of the disease. This factor has been brought about, according to Joslin, by social forces which are making for the improvement of the standards of life of the population. The introduction of machinery relieved men of much physical work, while the increase in the standards of living brought about a greater consumption of food. Thus two forces operate to disturb the metabolic equilibrium of large numbers of persons.

A satisfactory explanation has not been offered for the much greater death rate for diabetes in women. If Joslin's contention that overweight is the most important etiologic factor be admitted, then the almost universal practice of rigid dieting among American women for the past decade should have had the effect of reducing the mortality among them, which it did not.

Strome and Blaine recommend that: 1. Every man and woman should have periodic health examinations with urinary and blood sugar determination if indicated, most emphatically so after the twenty-fifth year. 2. Death certificates should clearly specify whether a death is from diabetes or with diabetes. 3. A statewide educational program for the physician and carefully

2. Dublin, L. I.: Recent Trends in Diabetes Mortality. *Bull. New York Acad. Med.* 9: 540 (Sept.) 1933.

3. Joslin, E. P.; Dublin, L. I., and Marks, H. H.: Studies in Diabetes Mellitus: III. Interpretation of the Variations in Diabetes Incidence. *Am. J. M. Sc.* 189: 163 (Feb.) 1935.

1. Strome, F. P. and Blaine, B. C.: Diabetes Mortality in Pennsylvania, Pennsylvania M. J. 42: 481 (Jan.) 1940.

written information for the layman for the perception, diagnosis and treatment of diabetes should be instituted. To this might be added a suggestion by Stafne⁴ that what is more necessary is a wide dissemination of knowledge. He found in a somewhat similar study as a member of the Commission on Diabetes of the Minnesota State Medical Association that 28 per cent of the deaths from diabetes in Minnesota are attributable to uncomplicated diabetic coma. Such preventable deaths indicate failure to make use of established methods.

The epidemiologic or mass approach to the problems of the more important diseases such as tuberculosis, syphilis, heart disease, cancer and diabetes is a step in the right direction. This interesting study has come from the Commission on Diabetes and the Medical Society of Pennsylvania. Its authors, F. P. Strome, director of the Bureau of Vital Statistics, Pennsylvania Department of Health, and B. C. Blaine, chairman of the Commission on Diabetes of the Medical Society of the State of Pennsylvania, are to be congratulated on initiating what promises to be a state by state study of an important health problem.

Current Comment

MANAGEMENT OF ACNE VULGARIS

Six well known dermatologists, questioned recently by the *Journal of Investigative Dermatology*¹ on the management of acne vulgaris, express considerable unanimity and only occasionally a difference of opinion. Thus, all are agreed that endocrine therapy is without value. The vitamins are likewise regarded as valueless except for the general indication of improving the health of the patient. Five of the contributors found that vaccines and toxoids are without value. One contributor states that a staphylococcus toxoid is of value especially in the pustular type. The relation of anemia to acne was considered as casual and not causal. All were agreed that the administration of hematinics has little if any effect on the course of the disease. Roentgen therapy is regarded as a valuable though not a dominant feature in the management. One contributor resorted to it in about 25 per cent of his cases, while another dispensed with it in the majority of his cases. One of the contributors would not employ it under the age of 17 years. Another restricted it to patients above 16 and still another to patients above 15, while two employed it at any age and one employed it occasionally for patients of 12 and even 10 years of age. All are more or less opposed to repetition of a single course. One never gives more than a single course. Another contributor would wait at least one year before repeating and still another prefers to wait two or three years. Results from roentgen therapy varied from excellent to fair and no response. Four contributors did not think that roentgen therapy increased the tendency to pitting and scarring. One even felt that it

had the effect of diminishing the tendency and only one had seen evidence of damage "even under proper dosage." Roentgen therapy was most effective when combined with other measures and was not practiced alone. Four of the contributors stressed the importance of so-called acne surgery. This consisted in opening the pustules and extracting comedones. One did not practice it and one felt that it might aggravate the condition. He believed that sulfur paste was capable of accomplishing the same purpose. The importance of local medicinal treatment is concurred in by all. The topical applications most commonly used are combinations of sulfur, resorcinol or salicylic acid. One of the contributors regularly prescribes 10 per cent kaolin and 10 per cent precipitated sulfur in zinc oxide ointment. One of the contributors obtained 60 per cent of cures in from three to eight months with topical drugs "that keep the skin in constant state of desquamation." Dietary treatment was considered without special value by all except one. This contributor insisted that diet was essential to success in the treatment of acne. He prescribed a low fat diet. Milk was considered the most common offensive substance. Iodine in cooking salt was recommended. Another contributor would cut down the carbohydrates and interdict the use of iodine salt. A middle position is taken by the dermatologist, who would correct the irregularities in the diet and interdict the eating of chocolate and the use of butter. He admits, however, that indiscretions in diet are not the cause or the precipitating factor in acne.

PEMPHIGUS

The highly fatal nature of pemphigus together with its uncertain and unexplained etiology and pathogenesis make it a disease of unusual interest. Talbott and Coombs,¹ in a recent study of thirty-four patients with pemphigus, classify the disease simply as either acute or chronic. Study of the blood of the patients with acute pemphigus showed changes in concentration of constituents consistent with adrenal insufficiency. Patients with either type of pemphigus showed an increase in volume of plasma, blood and interstitial fluid. Ten patients with acute pemphigus were observed with special care and to five of them only supportive treatment was given. Death of all the latter followed in from eleven days to eight weeks after onset of acute symptoms. In two of the three in whom necropsies were performed anatomic changes were demonstrable in the adrenal glands. The other five patients with acute pemphigus were given large amounts of adrenal cortex extract and sodium chloride solution. This procedure was followed in each instance by a remission, which persisted three and one-half and three years respectively in two patients without further specific treatment. In the remaining three the remission lasted only as long as active material was given and eventually this became ineffective. Although these observations do not appear to elucidate the causative factors materially, they do constitute an arresting contribution to the knowledge of pathogenesis.

4. Stafne, W. A.: Diabetes in Minnesota, *Minnesota Med.* 17: 503 (Sept.) 1934.

1. Symposium on the Practical Management of Acne Vulgaris, *J. Invest. Dermat.* 3: 143 (April) 1940.

1. Talbott, J. H., and Coombs, F. S.: Pemphigus, *Arch. Dermat. & Syph.* 41: 359 (Feb.) 1940.

ORGANIZATION SECTION

MEDICAL LEGISLATION

STATE MEDICAL LEGISLATION

Louisiana

Bill Introduced.—H. 21 proposes to require a physician attending a pregnant woman to take or cause to be taken a sample of her blood within fifteen days of the time of the first examination and to submit the sample to an approved laboratory for a standard serologic test for syphilis. All other persons permitted by law to attend pregnant women but not permitted to take blood samples must cause a sample of blood to be taken by a licensed physician.

MEDICAL BILLS IN CONGRESS

Bills Introduced.—S. 3997, introduced by Senator Reynolds, North Carolina, proposes to authorize the Administrator of Veterans' Affairs to furnish domiciliary care and medical and hospital treatment to any former member of the Army, Navy, Marine Corps or Coast Guard who was not dishonorably discharged therefrom and who received such care or treatment at any Veterans' Administration facility at any time prior to March 20, 1933. S. 4017, introduced by Senator Nye, North

Dakota, proposes that any veteran of any war, who was not dishonorably discharged, suffering from any disability, disease or defect, irrespective of whether such disability, disease or defect was service connected, shall be entitled to receive outpatient treatment at such facilities of the Veterans' Administration within the limitations of such facilities, under such regulations as the Administrator of Veterans' Affairs shall prescribe.

DISTRICT OF COLUMBIA

Change in Status.—S. 2013 has been reported to the Senate, with amendments, proposing to amend the Code of the District of Columbia to provide for the organization and regulation of cooperative associations. The Senate Committee on the District of Columbia, in reporting the bill, recommended that there be stricken from it the following sentence: "In the case of an association formed hereunder which arranges the rendering to its members, of licensed professional services on a non-profit basis, said association shall not be subject to the insurance laws, shall not be construed as being in violation of any rule against corporate practice of professions, or in violation of statutes regulating licensure of professions."

OFFICIAL NOTES

THE NEW YORK SESSION

Special Radio Programs

The following radio programs have been arranged in connection with the annual session of the American Medical Association in New York.

Dr. Rock Sleyster, President of the Association, will broadcast over the Columbia Broadcasting System, Wednesday, June 12, from 10:15 to 10:30 p. m., eastern daylight saving time. His subject will be "The American Medical Association and Health Education." Dr. Nathan B. Van Etten, President-Elect, will broadcast over the Blue Network of the National Broadcasting Company, Tuesday, June 11, from 5:15 to 5:30 p. m. His subject will be "American Doctors and American People." Dr. Van Etten will also participate in the "Adventures in Science" program over the Columbia Broadcasting System on Thursday, June 13, from 4 to 4:15 p. m. Dr. Sleyster's talk will be translated and rebroadcast in Yiddish and in Italian.

The programs to be broadcast from New York, with stations, speakers, dates and topics, all on eastern daylight saving time, are as follows:

SATURDAY, JUNE 8:

Station WABC (CBS), 1:15-1:30 p. m. Dr. Philip Lewin, Chicago, "One Pair of Legs Must Last a Lifetime."

MONDAY, JUNE 10:

Station WQXR, 10:30-10:45 a. m. Dr. Harold C. Voris, Chicago, "Head Injuries."

Station WOV, 1:15-1:30 p. m. Dr. Vincenzo Fanoni, New York, will broadcast an Italian translation of Dr. Sleyster's talk "The American Medical Association and Health Education."

Station WOR, 2:45-3 p. m. Dr. Chevalier Jackson, Philadelphia, "Removing Foreign Bodies From the Lungs." Dr. Morris Fishbein or Dr. W. W. Bauer, Chicago, "News of the Meeting."

TUESDAY, JUNE 11:

Station WEVD, 10-10:15 p. m. Dr. L. B. LaPlace, Philadelphia, "Heart Disease."

Station WMCA, 11:15-11:30 a. m. Dr. Wallace E. Herrell, Rochester, Minn., "Sulfanilamide."

Station WOR, 3-3:15 p. m. Dr. A. H. Bulbulian, Rochester, Minn., "Restoring Facial Defects." Dr. Morris Fishbein or Dr. W. W. Bauer, Chicago, "News of the Meeting."

Blue Network, National Broadcasting Company, 5:15-5:30 p. m. Dr. Nathan B. Van Etten, "American Doctors and American People."

WEDNESDAY, JUNE 12:

Station WABC, Columbia Broadcasting System, 10:15-10:30 p. m. Dr. Rock Sleyster, Wauwatosa, Wis., "The American Medical Association and Health Education."

Station WQXR, 4:15-4:30 p. m. Dr. Elliott Joslin, Boston, "Diabetes."

THURSDAY, JUNE 13:

Station WNYC, 11:45 a. m.-12 noon. Dr. Carl Badgley, Ann Arbor, Mich., "Pain in the Back."

Station WNYC, 1:30-1:45 p. m. Dr. John A. Toomey, Cleveland, "Prevention of Communicable Disease."

Station WABC, Columbia Broadcasting System, 4:4:15 p. m. Dr. Nathan B. Van Etten, "Adventures in Science."

Blue network, National Broadcasting Company, 5:15-5:30 p. m. Dr. Morris Fishbein or Dr. W. W. Bauer, Chicago, "News of the Meeting."

FRIDAY, JUNE 14:

Station WOR (MBS), 10:30-10:45 a. m. Dr. Albert E. Sloane, Boston, "School Children's Eyes."

Station WQXR, 11-11:15 a. m. Dr. L. S. Selling, Detroit, "Who Has Traffic Accidents, and Why?"

Station WNYC, 11:45 a. m.-12 noon. Dr. Kellogg Speed, Chicago, "What a Broken Bone Really Means."

SATURDAY, JUNE 15:

Station WEVD, 2:45-3 p. m. Dr. H. L. Gordon, New York, will broadcast a Yiddish translation of Dr. Sleyster's talk "The American Medical Association and Health Education."

A radio talk on "Pneumonia" by Dr. H. F. Flippin of Philadelphia will be broadcast at a time to be announced later.

ORGANIZATION SECTION

ADDRESSES BY OFFICIAL STAFF

Dr. W. W. BAUER:

- June 11—Joint Committee on Health Problems in Education of the National Education Association and the American Medical Association, Symposium, New York City.
- June 18—Borrowed Time Club, Evanston, Ill.
- June 26—Milwaukee Hospital School of Nursing, Milwaukee.

Dr. MORRIS FISHBEIN:

- June 2—Council of Negro Organizations, Chicago.
- June 6—Rush Medical Alumni, Chicago.
- June 7—Bergen County Medical Society, New Jersey.
- June 11—Woman's Auxiliary, New York City.
- June 23-24-25—Maine Medical Association, Rangeley, Maine.
- June 26—New Jersey Pharmaceutical Association, Asbury Park.

WOMAN'S AUXILIARY

Colorado

The directors of the auxiliary to the Colorado State Medical Society met in Denver, February 8, with thirty-six members present. The most important project of the auxiliary is its benevolent fund for doctors' families in need. The auxiliary has raised \$3,052 for the fund, which was established about six years ago. Also, a special activity of the auxiliaries in Colorado has been the placing of *Hygia* in schools and public libraries.

Oregon

Members of the auxiliary to the Josephine County Medical Society meet regularly to sew for the Josephine County General Hospital in Grant Pass. The auxiliary to the Lane County Medical Society has placed *Hygia* in the libraries of twenty-seven schools in the county. The auxiliary to the Multnomah County Medical Society maintains a student loan fund, which is used by a student at the University of Oregon Medical School. The study group of the auxiliary in October discussed a paper on "Occupational Therapy."

Pennsylvania

The auxiliary to the Allegheny County Medical Society met in Pittsburgh January 23. Miss Frances Shirley, who is in charge of the Industrial Home for Crippled Children, spoke on "The Care of Crippled Children." Dr. Walter F. Donaldson, secretary, Medical Society of the State of Pennsylvania, discussed socialized medicine.

The auxiliary to the Beaver County Medical Society has placed *Hygia* in the high schools of the county and has made gifts totaling \$110 to the county institutions.

At the fourth annual health conference of the auxiliary to the Berks County Medical Society in Reading, January 8, Dr. O. Paul Holmer, director of the Child Guidance Institute of Berks County, discussed "Normal Activities of the Adolescent Boy and Girl"; Dr. Fred B. Nugent, chief of the gynecology department of Reading Hospital, "Preparing for a Normal Menopause"; Dr. Edward L. Bortz, chairman, Commission for the Study of Pneumonia Control, Medical Society of the State of Pennsylvania, "The Doctor Looks at Pneumonia"; Dr. George R. Clammer, pediatrics department of St. Joseph Hospital, Reading, "Preparing the Preschool Child to Face the World," and Dr. Robert J. Phifer, clinical director Wernersville State Hospital, "Psychiatry." A health film was shown and awards were presented to winners of the essay contest on the subject "Why General Good Health is an Asset" by Dr. Charles E. Lerch, president of the Berks County Medical Society.

Texas

The auxiliary to the El Paso County Medical Society met in El Paso January 8. Mr. R. E. Sherman spoke on housing and slum clearance. At a meeting, February 12, there was a discussion on socialized medicine. The auxiliary made the following donations: to the Baby Sanatorium at Cloudcroft, New Mexico, \$75; to the student loan fund of the state auxiliary \$25, and to the memorial fund of the state auxiliary \$25.

The auxiliary to the Bexar County Medical Society observed its annual public relations day with a luncheon on the roof of the Plaza Hotel, San Antonio. Speakers were Dr. Herbert Hill, president of the Bexar County Medical Society, and Dr. Francisco Del Rio y Canedo, who spoke on "Medicine in Mexico," illustrated by a motion picture. The auxiliary entertained ladies accompanying their husbands to the International Post Graduate Medical Assembly with a Mexican supper on January 23, with 125 guests in attendance. More than 200 ladies attended the tea for new members of the auxiliary at the Medical Library February 2. At the annual "Bring Your Husband" luncheon, February 9, speakers were Mrs. S. H. Watson, president of the auxiliary to the State Medical Association of Texas, and Dr. Sam E. Thompson. Dr. Thompson's subject was "Ethics for a Doctor's Wife."

The auxiliary to the Henderson County Medical Society met in Chandler, January 9, at the home of Mrs. J. F. Baugh. Dr. Gideon Francis Moon spoke on "Medicine, Yesterday and Today."

The auxiliary to the Hunt-Rockwall-Rains Counties Medical Society met in Greenville January 2. "Safety First," by Alvin Knight, was reviewed. At a meeting of the auxiliary to the Johnson County Medical Society in Cleburne recently Mrs. R. W. Kimbro read a paper entitled "A Visit to Some European Clinics."

The auxiliary to the Kerr-Kendall-Gillespie-Bandera Medical Society has given complimentary renewal subscriptions to *Hygia* to the public schools in these counties. The auxiliary to the Tarrant County Medical Society met in Fort Worth January 12. Mrs. E. M. Wier spoke on "Marihuana: Evil Effects of Its Use on Youth." The auxiliary observed Doctor's Day, with a dinner, dancing and a hobby show at the Woman's Club, Fort Worth, February 9.

Washington

Mrs. L. S. Roach, president of the auxiliary to the Washington State Medical Association, spoke on the aims of the auxiliary at a meeting of the auxiliary to the Grays Harbor County Medical Society in Aberdeen January 17. Miss Mary Huston, head of Whitman College Infirmary, talked on the status of nursing and medicine in Puerto Rico at a meeting of the auxiliary to the Walla Walla County Medical Society in Walla Walla January 15. Articles from *Hygia* were reviewed and medical current events given at a meeting of the auxiliary to the Clark County Medical Society at the home of Mrs. Charles Otto, near Vancouver, January 9.

Wisconsin

The auxiliary to the Dane County Medical Society held its January meeting in Madison. Mr. G. B. Larson spoke on hospital insurance. The booklet "The Doctor's Wife," by Dr. Rock Sleyster, President of the American Medical Association, was read.

At a recent meeting of the auxiliary to the Fond du Lac County Medical Society in Fond du Lac, members voted to give twenty complimentary subscriptions to *Hygia* to be placed in schools and libraries of the county.

At the February meeting of the auxiliary to the Kenosha County Medical Society in Kenosha, Mr. Nicholas Magaro gave a talk, illustrated by moving pictures, of his trip to Italy. Dr. W. M. Jermain, president of the Milwaukee County Medical Society, discussed the functions of the auxiliary, and Mr. James O. Kelley, executive secretary of the society, spoke on "What Every Doctor's Wife Should Know" at a meeting of the auxiliary to the society in Milwaukee February 9. The January meeting of the auxiliary to the Washington-Ozaukee County Medical Society was held in Richfield. The auxiliary has given twenty-six complimentary subscriptions to *Hygia* to schools and hospitals in the two counties.

IOWA

District Meeting.—The annual meeting of the Iowa and Illinois Central District Medical Association was held at the Outing Club in Davenport, May 16. The speakers were: Dr. August A. Werner, St. Louis, Anterior Pituitary Gonad Relation; Dr. John J. Shea, Memphis, Tenn., Management of Tonsil and Adenoid Surgery; Dr. Italo F. Volini, Chicago, A Survey of Heart Disease; Dr. Charles G. Farnum, Peoria, Ill., Some Original Medical Poems Entitled "Nonsense in Rhyme"; Dr. Walter C. Alvarez, Rochester, Minn., How Medicine Began.

KANSAS

Society News.—Dr. Earl C. Padgett, Kansas City, Mo., addressed the Shawnee County Medical Society, April 1, on "Calibrated Intermediate Skin Grafts."—The speakers before the Golden Belt Medical Society in Junction City, April 4, were Drs. Edward H. Skimmer, Kansas City, Mo., on "Treatment and Management of Cancer of the Uterine Cervix"; Manuel Grodinsky, Omaha, "Infection of the Hand and Foot"; Robert M. Carr, Junction City, "Lipoid Pneumonia," and Leslie L. Saylor, Topeka, "Gas Bacillus Infection."

LOUISIANA

Personal.—Dr. Lewis C. Spencer, Harrisburg, has been appointed director of the Vermilion Parish Health Unit with headquarters in Abbeville, succeeding Dr. Murphy M. Sims, resigned. The unit was in charge of Dr. James A. Coleman, New Orleans, pending the appointment of Dr. Spencer.—Dr. Maurice Campagna, New Orleans, has been appointed medical director of the Orleans Tuberculosis Hospital.

State Medical Election.—Dr. Paul King Rand, Alexandria, was chosen president-elect of the Louisiana State Medical Society at its annual session in April and Dr. Christian Grenes Cole, New Orleans, was installed as president. Other officers are Drs. Henry Ashton Thomas, New Orleans; Daniel J. Murphy, New Orleans, and Dawson T. Martin, Donaldsonville, vice presidents, and Dr. Paul T. Talbot, New Orleans, secretary-treasurer.

MARYLAND

Personal.—Dr. Charles E. Gill, formerly of Boston, district health officer in the department of public health of Massachusetts, has been appointed health officer of Prince Georges County to succeed Dr. Archie B. Hooton, who resigned recently to go to South Carolina.—Dr. Walter B. Johnson, Cumberland, has been appointed health officer of Caroline County, recently appointed full time medical health officer in the Baltimore health department. He is the seventh full time officer to be appointed.

State Medical Meeting and Election.—Dr. Harvey B. Stone, Baltimore, was chosen president of the Medical and Chirurgical Faculty of Maryland at its annual meeting in Baltimore, April 23-24, to take office Jan. 1, 1941. Dr. Edward P. Thomas, Frederick, is now president. Dr. Richard T. Shackelford, Baltimore, is secretary. The 1941 annual session will be in Baltimore, April 22-23. The scientific program at the recent session included the following speakers:

Dr. Thomas, The Hospital in the Smaller Centers.
Dr. Howard F. Kaue, Washington, D. C., Prenatal Care.
Dr. Daniel S. Fisher, Salisbury, Meeting the Problem of the Premature Infant in Rural Districts.
Dr. Houston S. Everett, Baltimore, Some Gynecologic Aspects of Hypertension.

Dr. Edward D. Churchill, Jolin Homans professor of surgery, Harvard Medical School, Boston, delivered one Trimble Lecture on "Pulmonary Resection" and Dr. Elliott P. Joslin, Boston, one on "The Growing Problem of Diabetes and How to Meet It." A series of "practical up-to-the-minute talks" was presented. Twenty speakers participated in the round table luncheon.

MASSACHUSETTS

Conference on Mental Hygiene.—The Western Massachusetts Conference on Mental Hygiene in Education and Social Work was held at the Hotel Kimball in Springfield, April 12-13. One session was devoted to education and one to social work. Dr. Frederick H. Allen, Philadelphia, addressed the dinner meeting on "Value of a Mental Hygiene Clinic to a Community," and Dr. Ira S. Wile, New York, a luncheon session on "Mental Hygiene in the Field of Education."

MICHIGAN

Society News.—Dr. James Milton Robb, Detroit, addressed the Genesee County Medical Society in Flint, recently, on "The Blocked Nose."—Dr. Albert H. Montgomery, Chicago, discussed "Abdominal Tumors in Childhood" before the County Medical Society, April 2, in Battle Creek.—Dr. Elisha S. Gurdjian, Detroit, discussed "Cranial Injuries" before the Jackson County Medical Society in Jackson, April 16.

Alumni Reunion.—The annual clinic and alumni reunion of the Alumni Association of Wayne University College of Medicine will be held in Detroit, June 12-13. Round table discussions will be conducted by the following, all of Detroit:

New Drugs and Vitamins, Arthur H. Smith, Ph.D.
Preoperative and Postoperative Care, Dr. Alexander W. Blain.
Cardiovascular Diseases, Dr. Edgar H. Norris.
Gastrointestinal Diseases, Dr. Clyde E. Vreeland.
Fractures, Dr. Alfred D. La Ferte.
Obstetrics and Infant Resuscitation, Dr. Harold Henderson.

Reunions of the classes graduating in 1890, 1895, 1900, 1905, 1910, 1915, 1920, 1925, 1930 and 1935 will be held.

MINNESOTA

Course on Surgical Pathology.—The department of Pathology, University of Minnesota Medical School, Minneapolis, is offering a course on surgical pathology, June 17-July 26, designed to give a comprehensive review of the lesions shown in surgical specimens. Special emphasis will be placed on the diagnosis of tumors or lesions which may be confused with tumors. The daily class period is three hours but for any one who wishes to do extra work in some field material will be provided. The course is open to any one who has finished the regular medical course in pathology but is especially intended for hospital pathologists and those who wish a course to aid them in preparing for the examinations of the special boards. Establishment of a clinic in connection with this course to aid consideration. Dr. James S. McCartney, associate professor of pathology, is in charge.

MISSOURI

Society News.—The Jackson County Medical Society was addressed, April 23, by Drs. Cecil G. Leitch and Russell W. Kerr on "Recent Advances in the Clinical Pathologic Interpretation of Diseases of the Blood with Special Attention Paid to Abnormal Bleeding, Vitamin K and Prothrombin Determination."—The Kansas City Southwest Pediatric Society was addressed, April 16, by F. Copeland Sheldon, D.D.S., on "Some Considerations of Malocclusion and Facial Disharmony in the Growing Child," and Dr. Earl C. Padgett, "Some Phases of Reconstructive Surgery in Infancy and Adolescence."—The Association of Military Surgeons was addressed in Kansas City, April 17, by Lieut. Col. Daniel S. Lockwood, dental corps, U. S. Army, Station Hospital, Fort Leavenworth, Kan., on "Dental Practice in Military Service."—Dr. Frederick V. Emmert, St. Louis, discussed "Management of Difficult Labor Cases by the General Practitioner" before the St. Louis County Medical Society, April 24.—Dr. Allen O. Whipple, New York, addressed the Kansas City Academy of Medicine recently on "The Application of Chemistry to Certain Problems in the Preoperative and Postoperative Care of Surgical Patients."

MONTANA

Postgraduate Sessions in Obstetrics and Pediatrics.—The Montana State Medical Association and the Montana State Board of Health are conducting a series of postgraduate lectures throughout the state. The lecturers are Drs. William F. Mengert and Julian D. Boyd, associate professor of obstetrics and gynecology and associate professor of pediatrics, respectively, State University of Iowa College of Medicine, Iowa City. Their subjects are:

Normal Nutrition in Childhood.
Minor Ailments of Pregnancy.
Infant Feeding.
Management of Normal Labor; Puerperium.
Immediate Care of the Newborn; Prematurity.
Examination of Newborn and Resuscitation; Cesarean.
Treatment of Well Child Demonstration.
Abortion.
Treatment of Upper Respiratory Infections.
Obstetric Hemorrhage.
Normally Implanted Placenta; Postpartum Hemorrhage, Immediate (Otony, Retention, Tears) and Delayed.

The program was presented in Billings, May 24-25; Butte, May 27-28; Missoula, May 29-30; Kalispell, May 31-June 1, and will be continued in Havre, June 3-4; Great Falls, June 5-6; Lewistown, June 7-8, and Glendive, June 10-11.

NEW JERSEY

Society News.—Dr. Temple S. Fay, Philadelphia, addressed the annual meeting of the Passaic County Medical Society, Paterson, May 9, on "Refrigeration for the Control of Cancer." The meeting was held in cooperation with the local committee of the American Society for the Control of Cancer.—A symposium on communicable disease was presented before the Bergen County Medical Society at Bergen Pines, May 14, by Drs. Leverett D. Bristol, New York, speaking on poliomyelitis; Josephine B. Neal, New York, meningitis, and Philip M. Stimson, New York, recent developments in therapy.—Dr. James H. Means, Boston, addressed the section on medicine and pediatrics of the Academy of Medicine of Northern New Jersey, May 14, on "Some Endocrinopathies for Which We Have Successful Specific Treatment." Dr. Theodore Neustaetter, New York, addressed the section on obstetrics and gynecology, May 2, on "Present Day Status of the Value of the Endocrines in Sterility."—Drs. Charles Archie Crandell and Robert B. May, Greystone Park, addressed the Morris County Medical Society, Morris Plains, May 16, on "Alcohol and Its Relation to Mental Illness" and "Present Status of Shock Therapy" respectively.—Dr. Frederick D. Mott, Washington, D. C., and Mr. Harold L. Hoyt, New Brunswick, among others, addressed the Gloucester County Medical Society, Woodbury, May 16, on the Farm Security Medical Plan.

NEW YORK

Society News.—Dr. Frederick S. Wetherell, Syracuse, addressed the Onondaga County Medical Society, Syracuse, April 30, on "The Nodular (Adenomatous) Goiter—Medical or Surgical?"—Dr. Francis O. Harbach, Syracuse, addressed the Syracuse Academy of Medicine, May 21, on "Diagnosis and Management of Ovarian Dysfunction."—Dr. Ralph I. Lloyd, Brooklyn, addressed the Dutchess County Medical Society, Poughkeepsie, May 1, on "Proposed Eye as a Diagnostic Problem."—Dr. Charles F. Branch, Boston, addressed the Medical Society of the County of Albany in Albany, April 24, on "Clinical and Pathological Aspects of Cholecystitis."—Dr. Norman H. Plummer, New York, addressed the Nassau County Medical Society, Garden City, April 30, on "Pneumonia: Diagnosis and Treatment."

New York City

Medical Administrator Wanted.—The department of hospitals of the city of New York has an opening as medical administrator to serve as deputy commissioner at a salary of \$6,500. The deputy commissioner is exempt under the charter from competitive civil service. Citizenship and three years' residence in New York are required. The candidate's technical knowledge and administrative experience will rate 50 per cent in consideration for the position and 50 per cent will be rated for personal attributes. All applications must be made in writing and should be addressed to the Department of Hospitals, 125 Worth Street.

Courses in Venereal Diseases.—Practicing physicians are invited to register for practical clinical courses of observation in venereal diseases, to be given under the auspices of the bureau of social hygiene of the city department of health, beginning June 10. Six sessions will be devoted to syphilis and six sessions to gonorrhea, each series of six meetings to be limited to six physicians. Emphasis will be placed on practical clinical matters. There will be no lectures and no certificates will be awarded. The sole purpose of the courses is to give the practicing physician an opportunity for first hand knowledge of modern diagnosis and treatment of venereal diseases.

Symposium on Arteriosclerosis.—A symposium on arteriosclerosis will be presented in the Erdmann Auditorium, New York Post-Graduate Medical School and Hospital, June 6. The program will be:

- Clive M. McCay, Ph.D., and Dr. John A. Saxton Jr., Effect of Retarded Growth on the Cardiovascular System and Other Systems in the Rat.
- Dr. James G. Carr, Chicago, Relation and Importance of Arteriosclerotic Disease in the Heart of Humans.
- Dr. Samuel Alcott Thompson, The Surgical Aspects for Treatment of Arteriosclerotic Heart Disease.
- Dr. Beverly Chew Smith, The Surgical Treatment of Arteriosclerosis Obliterans.
- Dr. Nelson W. Barker, Rochester, Minn., The Conservative Treatment of Arteriosclerosis Obliterans.

Society News.—Drs. John C. A. Gerster and Charles Gordon Heyd addressed the Medical Society of the County of Queens, April 30, on "Frozen Sleep Therapy in Cancer" and "Malignancy of the Large Bowel and Rectum" respectively. Dr. Robert L. Levy gave a Friday afternoon lecture before the

society, April 19, on "Diagnostic and Therapeutic Aspects of Cardiac Pain."—Drs. Richard H. Overholt, Brookline, Mass., and Samuel Potter Bartley, Brooklyn, addressed the Medical Society of the County of Kings, April 16, on "Clinical Studies in Primary Malignancy of the Lung" and "Reconstruction of the Arm and Hand" respectively.—Dr. Harold E. Himwich, Albany, addressed the New York Diabetes Association, April 19, on "Physiology of Insulin."—Drs. William DeWitt Andrus and Francis B. Berry addressed the Medical Society of the County of New York, April 22, on "The Importance of Vitamin K in Certain of the Hemorrhagic States" and "Surgery in Pulmonary Tuberculosis" respectively.

OHIO

Honored for Years of Practice.—The staff of the Fostoria City Hospital gave a dinner recently in honor of Dr. John H. Norris, marking his sixty-third anniversary of medical practice. He has practiced sixty years in Fostoria.—Dr. Mifflin B. Brady, Cincinnati, was recently honored at a dinner celebrating the fiftieth anniversary of his entrance into medical practice.

New X-Ray Unit Dedicated.—St. John's Hospital, Cleveland, dedicated a new million volt x-ray therapy unit and broke ground for a new \$2,000,000 nurses' home, recently. Speakers at the ceremony were Archbishop Joseph Schrembs, Cleveland; Dr. Max Cutler, director of the Chicago Tumor Institute, and Ernest E. Charlton, Ph.D., of the General Electric Research Laboratories, Schenectady, N. Y. The new unit is the second of its type, the first having been installed at Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York, in June 1939. It is of the gas insulated type, with the transformer tank and accessory apparatus installed on the first floor of the hospital in the space formerly occupied by a private room. Treatment ports through which the rays are directed at the treatment area extend into a treatment cubicle on the ground floor. Dr. David Steel is the roentgenologist of the hospital.

Society News.—Dr. Edward O. Harper, Cleveland, addressed the Portage County Medical Society, Kent, in April on "The Common Neuroses."—Drs. Roy L. Kile, Cincinnati, and Samuel Gendelman, Manchester, addressed the Adams County Medical Society, West Union, April 17, on "Precancerous Skin Conditions and Other Common Skin Lesions" and "Newer Uses of Sulfanilamide and Its Derivatives" respectively.—Dr. William B. Morrison, Columbus, discussed "Curability of Cancer of the Stomach" at a meeting of the Perry County Medical Society, New Lexington, April 18.—Dr. George L. Sackett, Cleveland, addressed the Tuscarawas County Medical Society, New Philadelphia, April 12, on "Errors in Roentgen Diagnosis."—At a meeting of the Auglaize County Medical Society in St. Marys, April 11, the speakers were Dr. Robert E. Boswell, Dayton, on "Clinical Significance of Hoarseness"; Dr. Robert Kent Finley, Dayton, "Infections of the Hand"; and Mr. James F. Conway, Cincinnati, "Professional Liability Insurance."

PENNSYLVANIA

Tuberculosis Society Election.—William W. Comfort, LL.D., president of Haverford College, Haverford, was elected president of the Pennsylvania Tuberculosis Society at its recent annual meeting in Williamsport, succeeding Dr. William Devitt, Allenwood. Dr. John J. Shaw, state secretary of health, Harrisburg, was named honorary vice president; Dr. Devitt and John H. Scheide, Titusville, vice presidents, and Dr. Charles Howard Marcy, Pittsburgh, secretary.

Society News.—Dr. Henry D. Lafferty, Philadelphia, addressed the Dauphin County Medical Society, May 7, on "Sudden Death Within Twenty-Four Hours After Delivery."—Dr. James H. Corwin, Washington, addressed the Washington County Medical Society, May 8, on treatment of fractures.—At a meeting of the Delaware County Medical Society, Chester, May 9, the speaker was Dr. Hugo Roesler, Philadelphia, on "Cardiac Diagnosis Without the Aid of Instruments."—Dr. Edmund R. McCluskey, Pittsburgh, addressed the Fayette County Medical Society, Uniontown, May 2, on "Laryngotracheobronchial Croup with Pulmonary Abscess."

Philadelphia

Alumni Reunion.—The alumni luncheon of the University of Pennsylvania at the University Club, May 15, was addressed by Dr. Alfred Newton Richards, professor of pharmacology at the school. His subject was "Research in Medicine at the University of Pennsylvania."

Schireson Sentenced to Eighteen Months in Penitentiary.—Dr. Henry Junius Schireson, a plastic surgeon, was sentenced, May 8, to two concurrent terms of eighteen months

in the Lewisburg Federal Penitentiary, according to the newspapers. He was permitted to remain at liberty on \$20,000 bail pending an appeal to the U. S. Circuit Court of Appeals. Schireson was convicted, March 27, of concealing \$130,000 in assets before filing in bankruptcy in 1937 and swearing a false oath. He was sentenced on both counts of the conviction. His bankruptcy petition listed assets of \$334 and debts of \$33,901. The \$130,000 he was said to have hidden from his creditors assertedly was transferred to his wife, it was stated. In urging a substantial sentence, Asst. U. S. Atty. Thomas J. Curtin said that Dr. Schireson pleaded guilty twice and was convicted once of selling narcotics illegally in Baltimore; served ten months in the Allegheny County Workhouse for conspiracy to cheat and defraud and six months in Rikers Island Prison, New York, for illegal practice of medicine. In 1930 Schireson's license to practice medicine in Illinois was revoked by the state department of registration after a hearing in Chicago on charges of malpractice. According to the report, Miss Sadye Holland, Chicago, testified that she went to Schireson to have a scar removed from her arm and that he induced her to undergo an operation to straighten her legs. Complications after the operation necessitated the amputation of both legs, it was stated. In 1933 the Illinois Supreme Court reversed the license revocation, holding that incompetent testimony was permitted at the hearing before the medical board.

SOUTH CAROLINA

State Medical Election.—Dr. George M. Truluck, Orangeburg, was named president-elect of the South Carolina Medical Association at its annual meeting in Charleston, April 30-May 2, and Dr. William L. Pressly, Due West, became president. Dr. Robert E. Seibels, Columbia, was elected vice president and Dr. Edgar A. Hines, Seneca, reelected secretary for the thirty-first year. The 1941 meeting will be in Greenville.

Special Society Meetings.—Dr. Richard B. Josey, Columbia, was elected president of the South Carolina Pediatric Association at the annual meeting in Columbia April 8. Dr. Wilburt C. Davison, Durham, N. C., was the guest speaker on "Pediatric Therapeutics."—The South Carolina Urological Association met in Columbia recently with Dr. Silas Raymond Thompson, Charlotte, N. C., as the guest speaker in the afternoon on "The Present Status of Prostatic Surgery" and Dr. Lloyd G. Lewis, Baltimore, in the evening on "The Neurological Bladder."

VIRGINIA

District Meeting.—The spring meeting of the Southwestern Virginia Medical Society was held in Radford, April 17. Drs. Isaac A. Bigger and William B. Porter, Richmond, conducted a round table discussion on "Infections, General and Local, from the Surgical and Medical Standpoint." At an evening session Dr. Walter C. Alvarez, Rochester, Minn., was the guest speaker on "Hints in the Treatment of Indigestion" and Dr. Harry W. Bachman, Bristol, presented a paper on "Fibroma of the Thyroid Gland."

WISCONSIN

Society News.—At a meeting of the Wood County Medical Society, Wisconsin Rapids, April 4, the speakers, all of Wisconsin Rapids, were Drs. Rogers E. Garrison on "Pulmonary Stenosis"; Wallace L. Nelson, "Pyelonephritis in Pregnancy," and Leland C. Pomainville, "Rocky Mountain Spotted Fever."—Dr. Ralph M. Waters, Madison, addressed the Brown-Kewaunee-Door Counties Medical Society, Green Bay, April 11, on "The Relation of Morbidity to Anesthesia."—The Milwaukee Society of Clinical Surgery was addressed at a dinner meeting at the University Club, May 28, by Drs. Harry Beckman on "Physiologic Aspects of Therapy"; Hugh A. Cunningham, "Clinical Indications for Oxygen Administration"; Ralph M. Waters, Madison, "Clinical Response to Oxygen Therapy," and Mr. James I. Banash, Chicago, "Mechanical Considerations of Oxygen Therapy Apparatus."

CANAL ZONE

Society News.—Dr. Clarence A. Mills, Cincinnati, addressed the Medical Association of the Isthmian Canal Zone at a recent meeting on "Climatic Influences over Combustion Level and Resistance to Infection." Dr. Mills also made plans for studies in tropical physiology to be carried out in cooperation with Isthmian health agencies.

GENERAL

New Bulletin for Committee on Maternal Welfare.—The American Committee on Maternal Welfare is publishing a bulletin entitled *The Mother* to keep its members informed regarding its activities, to serve as a means of disseminating information on the plans and programs of maternal welfare which are being carried out in various communities. The first number appeared in April. It is not intended to be a medical journal or to present scientific articles. Offices of the committee on maternal welfare are at 650 Rush Street, Chicago.

Swindler of Physicians Now in Prison.—Oscar Hanson, Fort Worth, Texas, was recently incarcerated in the prison at East Lansing, Mich., following his apprehension for several swindles of physicians. Hanson's method was to buy glasses from oculists throughout the country, usually giving a check to the amount of \$30. He usually signed the name W. C. Curran in endorsing the checks, asking for the difference between the amount of the check and the price of the glasses in cash. He did not return for the glasses. When apprehended, Hanson admitted his guilt.

American Hospital in Paris Needs Funds.—An appeal has been issued for funds for the American Hospital in Paris by Winthrop W. Aldrich, chairman of the French and British Relief Funds. The hospital's facilities are being taxed to the utmost by the wounded soldiers and thousands of refugees. According to the announcement in the *New York Times*, the French and British Relief Funds, which have been aiding this hospital since the outbreak of the war, will at once send over all contributions that are given. Checks should be made out to the French and British Relief Funds and sent to their offices at 46 Cedar Street, New York.

Alumni Reunions in New York.—The annual luncheon of Phi Rho Sigma Fraternity will be held at the Hotel Belmont Plaza, New York, June 12, during the annual session of the American Medical Association. Alumni of Jefferson Medical College will hold a dinner at the Hotel Murray Hill, June 12. Dr. Thomas F. Duhigg is chairman of arrangements. He may be addressed at the hotel. Alumni of Northwestern University Medical School, Chicago, will hold a dinner at the Longchamps Restaurant, New York, June 12. Dr. Robert McGrath, New York, is chairman in charge. The Alpha Mu Pi Omega Medical Fraternity will hold a luncheon in New York at the University of Pennsylvania Club, June 12.

Human Serum Association.—The annual meeting of the American Human Serum Association will be held at the Willard Parker Hospital, New York, June 10. The following program will be presented:

Drs. Maurice A. Hardgrove and Daniel B. Claudon, Milwaukee, Incidence of Syphilis Among Convalescent Serum Donors in Milwaukee.
Drs. Aims C. McGuinness and Joseph Stokes Jr., Philadelphia, Use of Repeated Injections of Normal Pooled Serum in the Control of Upper Respiratory Infections.

Drs. Paul J. Dwan and Erling S. Platou, Minneapolis, Bacteriostatic Properties of Scarlet Fever Convalescent Serum, Antitoxin and Hyperimmune Human Scarlet Fever Serum.

Dr. William Thalheimer and Sophronia Myron, New York, Fate of Incompatible Iso-Agglutinins Which are Injected Intravenously.

A round table on blood substitutes will be conducted by Dr. Virgil H. Moon, Philadelphia; Dr. Sidney O. Levinson, Dr. Frank E. Rubovits Jr. and Dr. Heinrich Nedcheles, Chicago; Dr. Max M. Strumia, Bryn Mawr, Pa., and John Elliott, Salisbury, N. C. If time permits Dr. Stokes will introduce a round table on viruses.

Fellowships for Biological Research.—The Zoological Society of San Diego announces two scholarships available to advanced graduate students for research work at the Biological Research Institute on some phase of animal biology (concerned primarily with such branches as pathology, bacteriology, parasitology, physiology, comparative anatomy, comparative biochemistry, animal nutrition or animal psychology). The stipend of each scholar is \$1,000 annually. Since the institute is not directly affiliated with any university, it is desirable that the recipient of the scholarship work under the direction of the department from which he applies, and preference will be given to postdoctorate investigators or to candidates for an advanced degree, it being understood that only the thesis or dissertation requirements or parts thereof can be fulfilled at the Zoological Research Laboratory. Applications should be forwarded to Charles R. Schroeder, D.V.M., Zoological Society of San Diego, Balboa Park, San Diego, Calif., before June 15.

Chemical Society Awards.—Eric G. Ball, Ph.D., associate in medicine, Johns Hopkins University School of Medicine, Baltimore, received the Eli Lilly Award of \$1,000 for research in biologic chemistry at the spring meeting of the American Chemical Society in Cincinnati, April 8. Dr. Ball reported the discovery that riboflavin is a constituent of the enzyme xanthine oxidase. A native of England, Dr. Ball is 36 years old and took the degree of doctor of philosophy in physiologic chemistry at the University of Pennsylvania in 1930. Mary E. Pennington, Ph.D., New York, a consultant and adviser on handling the transportation and storage of perishable foods, received the Francis P. Garvan gold medal presented through the chemical society for distinguished service to chemistry. Dr. Pennington was chief of the food research laboratory of the bureau of chemistry in the U. S. Department of Agriculture from 1908 to 1919 and was manager of research for a commercial firm before going into private work as a consultant.

Broncho-Esophagological Association.—The twenty-third annual meeting of the American Broncho-Esophagological Association will be held at the Waldorf-Astoria Hotel, New York, June 5, under the presidency of Dr. Lyman G. Richards, Boston. Among the speakers will be:

- Dr. Clyde A. Healy, Rochester, N. Y., *Surgical Management of Intractable Cardiospasm.*
- Dr. Millard F. Arbuckle, St. Louis, *Bronchoscopic Treatment of Lung Abscess.*
- Dr. Samuel J. Pearlman, Chicago, *Sarcocarcinoma of the Esophagus: Is There Such an Entity?*
- Drs. Chevalier L. Jackson and George S. McReynolds Jr., Philadelphia, *Anesthesia for Percutaneous Endoscopy.*
- Dr. Mervin C. Myerson, New York, *Bronchoscopy in Tuberculous Children.*
- Dr. George R. Brighton, New York, *Laryngotracheobronchitis.*
- Dr. Frances W. Davison, Danville, Pa., *Some Observations on the Control of Humidity and Temperature in Oxygen Tents.*
- Dr. Hermann E. Bozer, Buffalo, *Collapse Without Clinical Signs of External Pressure.*

The New York members of the association will hold special clinical demonstrations at various hospitals in the city June 14.

Winners in Health Conservation Contest.—Winners in the annual city and rural health conservation contests conducted by the U. S. Chamber of Commerce in cooperation with the American Public Health Association were announced recently. These awards are made on the basis of the manner in which a community is meeting its health needs and are not necessarily made to the healthiest communities. The winners in the city contest were Milwaukee for cities of more than 500,000 population, Memphis for cities between 250,000 and 500,000, New Haven and Hartford, Conn., tied for cities between 100,000 and 250,000, Newton, Mass., for cities between 50,000 and 100,000, Greenwich, Conn., and Plainfield, N. J., tied for cities between 20,000 and 50,000, and Englewood, N. J., for cities under 20,000. Counties winning awards were Northeastern Division, Alger-Schoolcraft Health Unit, Michigan; Eastern Division, Fayette County, Ky.; Southeastern Division, Lauderdale County, Miss.; South Central Division, St. Mary's Parish, La., and Western Division, Wasco County, Ore. Special awards for maintaining their high standards went to Davidson County, Tenn.; El Paso County, Texas; Pike County, Miss.; Shawnee County, Kan., and Woodbury County, Iowa.

American Neisserian Medical Society.—The sixth annual session of the American Neisserian Medical Society will be held at the Shelton Hotel in New York, June 10-11, under the presidency of Dr. Nels A. Nelson, Boston. Included among the speakers will be:

- Dr. Irwin I. Lubowe, New York, Larry Landau, B.S., and Daniel Miskin, Ph.D., *Veneral Disease Prophylaxis—An Ideal Prophylactic and Technic.*
- Dr. William Ray Jones, Minneapolis, *Correlating the Micropathology and the Clinical Findings in Gonorrhea.*
- Drs. John F. Mahoney, Cassius J. Van Slyke, and Rolla R. Wolcott, Staten Island, N. Y., *Sulfathiazole and Sulfamethylthiazole in the Treatment of Gonococcal Infection.*
- Drs. Jacob Bernard Bernstine and George W. Bland, Philadelphia, *Gonorrhea Complicating Pregnancy.*
- Dr. Eleanor Louise R. Westphal, Ruth L. Charles, A.B., and Dr. Charles M. Carpenter, Rochester, N. Y., *Development of Sulfapyridine-Fast Strains of Gonococcus.*
- Dr. Wolfgang A. L. Casper, New York, *The Biochemistry of the Gonococcus and Its Practical Importance.*
- Dr. Walter M. Brunet, Chicago, *Is Gonorrhea a Bacteremia?*
- Drs. Alfred Cohn, Boris A. Kornblith, New York, and Arthur Steer, Brooklyn, *Observations on Untreated Patients with Gonococcal Infection and Those Receiving Chemotherapy.*
- Dr. Max Leopold Brodny, Boston, *An Improved Rubber Sheath for the Prevention of Veneral Infection.*

Annual "Doctor's Day" Proposed.—Senator Bilbo of Mississippi on May 15 introduced into the U. S. Senate a joint resolution proposing that June 22 of each year be designated "Doctor's Day" in commemoration of "the great sacrifices and untiring efforts and devotion of the members of the

medical profession in performing their duty to humanity by caring for the sick and injured in times of individual need and during periods of pestilence, war and other disasters and catastrophes." By the resolution, which was referred to the Committee on the Library and has now been reported favorably, the President would be authorized and requested to issue a proclamation annually calling on officials of the government to display the United States flag on "Doctor's Day" and inviting the people of the country to observe the day in an appropriate manner. In a speech in the Senate urging the passage of the resolution, Senator Bilbo paid tribute to the achievements and services of physicians. He quoted a part of the Hippocratic Oath to express the philosophy of the ethical physician and cited instances of the devotion of the physician to his calling. He concluded his address with the following peroration:

It seems to me altogether fitting and simple poetic justice would seem to demand that this long belated recognition be conferred; that we should duly create and record, among the memorabilia of our great nation, a day of commemoration for the great cause the doctor represents. That the observance of Doctor's Day may become a part of the customs of our enlightened age, a day of observance for not only the people of this age but even unto posterity.

Mr. President and gentlemen of the Senate, permit me earnestly to urge the passage of this joint resolution so that at least one day in each and every year shall be dedicated to the doctor, humanity's greatest benefactor, and on that day may every citizen send a card, a telegram or a letter of love and appreciation; send him flowers or other appropriate tokens of love and friendship, or, better still, drop in at his office or his home and personally convey to him a message of esteem and gratitude.

Meeting of Neurologists.—The sixty-sixth annual meeting of the American Neurological Association will be held at the Westchester County Club, Rye, N. Y., June 6-8, under the presidency of Dr. Foster Kennedy, New York. Included among the many speakers will be:

- Drs. Lewis J. Pollock and Isidore Finkelman, Chicago, *Changes in the Demarcation Current of Injured Muscle During Tetanus Produced by Stimulation with Induced Current.*
- Dr. Louis Casamajor, Joseph Roy Smith, Ph.D., Dr. Kate C. Constable and Charles W. P. Walter, B.S., *Correlated Clinical and Electroencephalographic Findings in Children with Focal Convulsive Seizures.*
- Drs. Eli Jefferson Browder and H. Russell Meyers, Brooklyn, *Comparative Pathophysiological Alterations Produced by Increased Intraventricular Pressure.*
- Drs. Howard C. Naffziger and Robert B. Aird, San Francisco, *Prolonged Jugular Compression—A New Diagnostic Test of Neurological Value.*
- Dr. Norman H. Joffe, New York, *Effects of Vitamin B Therapy in Paralysis Agitans.*
- Drs. Harold G. Wolff, Alvin M. Cahan, and George A. Schumacher, New York, *Studies of Migraine: The Contrast of Vascular Mechanisms in Headache and Preheadache Phenomena.*
- Dr. Walter E. Dandy, Baltimore, *Results Following Complete Extirpation of Acoustic Tumors by the Unilateral Approach.*
- Drs. Tracy J. Putman, New York, and Hiram Houston Merritt, Boston, *The Chemistry of Anticonvulsant Substances.*

Association for the Surgery of Trauma.—The second annual session of the American Association for the Surgery of Trauma will be held at the Claridge Hotel, Atlantic City, N. J., June 7-8, under the presidency of Dr. Edgar L. Gilcreest, San Francisco. The speakers will include:

- Dr. Philip H. Kreuscher, Chicago, *Treatment of Fresh Wounds.*
- Drs. Fraser B. Gurd and Laurie H. McKim, Montreal, *Use of Bipp and Liquid Paraffin in the Treatment of Wounds.*
- Dr. Samuel Potter Bartley, Brooklyn, *Reconstruction Surgery of the Hand.*
- Dr. Donald M. Glover, Cleveland, *A Summary of Fifteen Years Experience with the Tannic Acid Treatment.*
- Dr. Anatole Kolodny, New York, *Traction Paralysis of the Brachial Plexus.*
- Dr. Louis G. Herrmann, Cincinnati, *Diagnosis and Treatment of Post-Traumatic Osteoporosis.*
- Dr. Herbert H. Davis, Omaha, *The Possible Etiological Relationship Between a Single Trauma and Malignant Tumor.*
- Dr. Edward A. Kitlowski, Baltimore, *Preservation of Tendon Function by the Use of Skin Flaps.*
- Dr. Robert P. Dobbie, Buffalo, *Avulsion of Lower Biceps Tendon.*
- Dr. LeRoy Long, Oklahoma City, *Bilateral, Independent Rupture of the Long Head of the Biceps Brachii.*
- Dr. Nelson J. Howard, San Francisco, *Pathologic Changes Induced in Tendons Through Trauma and Their Accompanying Clinical Phenomena.*
- Dr. Hubbard T. Buckner, Seattle, *Treatment of Fractures of the Upper End of the Tibia Involving the Knee Joint.*
- Drs. Fenwick Beckman and John E. Sullivan, New York, *Some Observations on Fractures of Long Bones in Children.*
- Dr. Clay Ray Murray, New York, *An Evaluation of the Operative Treatment of Fractures.*
- Dr. Willis C. Campbell, Memphis, Tenn., *Fixation of the Only Graft by the Use of Vitallium Screws.*
- Dr. Charles S. Venable, San Antonio, Texas, *The Application of Vitallium in Compound Fractures.*
- Dr. Harry E. Mock, Chicago, *Trauma and Low Back Pain.*
- Dr. John E. Raaf, Portland, Ore., *Treatment of Patients with Protruded Intervertebral Disks.*
- Dr. Angus L. Cameron, Minot, N. D., *The Compatibility Factor in the Transfusion of Blood.*
- Dr. Earl C. Padgett, Kansas City, Mo., *Early and Late Care of Severe Injuries of the Face and Jaws.*
- Dr. William T. Coughlin, St. Louis, *Wounds Involving the Skeleton of the Face.*

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 27, 1940.

The Revision of the British Pharmacopeia

The last issue of the British Pharmacopeia was published in 1932 and revision every ten years was intended, alternating with the decennial revision of the United States Pharmacopeia. The next pharmacopeia was to appear in 1941, five years after the eleventh revision of the United States Pharmacopeia, but owing to war conditions the authorities have changed their general policy, and it is now intended to delay publication of the new British Pharmacopeia, although the work of revision goes on. In a lecture to the Pharmaceutical Society Dr. C. H. Hampshire, secretary of the Pharmacopeia Commission, described the work, which has been going on steadily since 1936. For most of the committees it has reached a stage at which publication is possible. Already four reports have been published and others are in preparation, but everything is subject to reconsideration. The efficiency of the new British Pharmacopeia is to be increased by including standards and assays not only for crude drugs and chemicals but also for as many galenical preparations and compounded drugs as possible. Some of these are already described in the Codex of the Pharmaceutical Society. Substances which are the subjects of patents were not formerly described unless licenses to manufacture had been granted to a number of firms. The rule has now been adopted that certain substances may be included if the patents are due to expire within a few years.

The new organic chemicals include sulfanilamide, which is recommended as the best known of the sulfonamides free from patent complications. Mandelic acid and calcium mandalate are included, as are calcium levulante for giving calcium by injection. Parachlorometaeresol, urethane, vanillin, beta-phenylisopropylamine and its sulfate, cyclopropane, pyridine-beta-carboxylic acid diethylamide and theophylline and ethylenediamine. Parachlorometacresol is included for its use as a bactericide in sterilizing solutions for injection and as a preservative in certain solutions. Because of the difficulties arising from using various names for ointments containing metallic mercury, it is recommended that the ointment of the current British Pharmacopeia containing 30 per cent should be continued with the synonym "mercury ointment" and that a diluted ointment containing 10 per cent and carrying the synonym "blue ointment" should be introduced with the note "When mercury ointment or mercurial ointment is prescribed or demanded, diluted ointment of mercury shall be supplied unless, on inquiry, it is ascertained that ointment of mercury is required."

The new inorganic chemicals proposed are calamine, bismuth subgallate, dried magnesium sulfate, dried sodium sulfate, potassium chloride and sodium metabisulfite (for use as an antioxidant for addition to solution of epinephrine hydrochloride and injection of procaine and epinephrine). Calamine is described as basic zinc carbonate colored with ferric oxide. The test on ignition excludes the form containing added zinc oxide.

The principal vitamin preparations recommended are standard concentrated solutions of vitamin A and D, an oil standardized to contain vitamins A and D, halibut liver oil containing not less than 30,000 units of vitamin A per gram, and crystalline thiamine hydrochloride to replace the adsorbate of vitamin B. Added to the serologic group are biologically tested preparations of antitoxinum histolyticum, toxinum staphylococcium detoxicatum, toxinum tetanicum detoxicatum, vaccinum choleraicum,

vaccinum staphylococcium, insulinum protaminatum cum zinco and progesteronum. The regulations provide for the control of biologically tested preparations throughout the British Empire.

Medical Publishing and the War

The war so far has had little effect on the publication of medical books. New books and new editions show no falling off. On medical journals it has had a perceptible but not great effect. Like other periodicals, they have become smaller. This is mainly due to scarcity of paper (which may soon be rationed) and falling off in advertisements.

The *British Medical Journal* has dropped its eight-page key to medical literature, and the supplement (dealing with medical politics) is incorporated instead of being an inset. Immediately on the declaration of war the number of pages (text and advertisements) shrank from an average of 144 to 100. By way of compensation smaller type is now used in various sections of the *Journal*, notably correspondence, editorials and annotations, notes on books and obituaries. The number of original articles submitted fell off in the early weeks of the war but soon returned almost to normal, much exceeding the available space. The policy has been adopted of giving preference and priority to articles of topical value relating to military medicine, surgery, hygiene and administration. Local news has been cut down drastically. Only two journals have suspended publication for the duration of the war—the *Liverpool Medico-Chirurgical Journal* and the *Birmingham Medical Review*. The former is the organ of the Liverpool Medical Institution, meetings of which continue as usual. In spite of the large number of physicians on military service, the medical societies are holding their meetings much as usual.

The Food Situation

As previously stated in *THE JOURNAL*, there is plenty of food in the country and our imported supplies are coming in practically unhindered, thanks to the convoy system and command of the sea. Since imported supplies amount to two thirds of the normal food consumption, they use a large amount of shipping, some of which it is desired to divert to importation of munitions. Moreover, the convoy system increases the length of voyages and so reduces the amount of goods that can be carried in a given time. More food is therefore being grown in the country. Two million more acres are now under cultivation and in the towns allotments, where a man can in his spare time cultivate a large part of the vegetables required by his family, have been provided on a large scale.

Much attention is being given to dietetics, so that food can be used in the best and most economical way. There is great room for improvement. Ordinarily too much meat is eaten and other dietetic mistakes are made. A campaign of instruction is going on, with the backing of the government. The people are being told that their traditional Sunday dinner of roast beef and Yorkshire pudding might disappear without the nation suffering. In a series of lectures Dr. J. C. Drummond, professor of biochemistry, University of London, pointed out that "the Oslo health meal" (entire wheat bread, milk, salad and apple) had in English schools given better results as regards both the health and the development of the children than the usual dinner of meat and cooked vegetables. The working class housewife has been learning that whole wheat bread is better than white bread for her children. The last war taught us the value of scientific research with regard to food. The fine research machinery here is now all available to the government and is being used. Germany's home front collapsed in the last war not only because of shortage of food but because of failure to realize the importance of the newly discovered facts of nutrition. Professor Drummond regarded fats as unimportant if, instead, green vegetables and energy foods were taken. Their deprivation was a hardship purely for

psychologic reasons. Physiologically we could do without them. Professor Drummond appears to be alone in holding this view.

There has been some rise in food prices, but they have been kept low as regards bread and other essential foods by a government subsidy of \$250,000,000 per annum. In the last war subsidized foods rose in price by 133 per cent and unsubsidized foods by 284 per cent. A small book, "Feeding the People in Wartime," has been published by two agriculturists, Sir John Orr and D. M. Lubbock. They point out that there is some loss in converting milk into butter and cheese. The full value is obtained only by consuming it as liquid milk. Milk should be subsidized so as to bring the present level of consumption by the poor of a quarter of a pint daily up to two thirds of a pint, the level of the rich. The potato they regard as of special value for health. An acre of potatoes yields twice as much food as an acre of wheat. So the potato is the best insurance against food shortage. It should be subsidized for increased consumption. Consumption of potatoes in Britain is only half what it is in some other countries, such as Belgium and Germany.

PARIS

(From Our Regular Correspondent)

April 27, 1940.

Poliomyelitis Virus in Sewer Water

During the summer months of 1939, Stockholm had a poliomyelitis epidemic in which seventy cases were reported. Dr. Kling, director of the scrotherapeutic institute of Stockholm, inoculated a number of monkeys with samples of the contents of the city's sewer waters. Repeated inoculation tests on these animals elicited positive reactions. He thus confirmed the observations of Paul, Trask and Culotta made at Charleston, S. C.; that viruses eliminated in fecal discharges may survive for a certain length of time in sewer waters.

Malingering

Disease simulation is one of the characteristics of war psychosis. It constantly changes its methods and its maladies. To the old devices found in all armies and at all times, and brought to a high degree of perfection among colonial troops, has been added the technic of malingering that has received its inspiration from recent medical discoveries. Icterus, for example, is induced by picric acid, 0.25 Gm. sufficing to color the tissues and the mucosa from eight to fifteen hours after ingestion. Repetition of the doses provokes symptoms of true catarrhal jaundice. It is not rare for a false icterus to be superimposed on a toxic icterus. However, disease simulation is met by improved methods of detection, such as that of detecting picric acid in the urine by the Kohu-Abrest reaction or picramic acid by Derrien's reaction. Albuminuria is simulated by taking white of egg just before the examination or by adroitly adding it to the urine at the time of the examination. In such cases, however, microscopic examinations fail to disclose the cytologic substances of nephritis. Furthermore, white of egg contains abundant and diversified flora that is easily discovered. In one case, reported by Maurice Perrin to a gathering of army surgeons, the dilution of white of egg was kept in a small rubber flask that could be easily concealed and used. Arrhythmia, tachycardia and auriculoventricular dissociations are induced by strong doses of caffeine of from 0.8 to 1.5 Gm. This is easily detected in the urine. Disease simulators have learned the thermogenic properties of nitrate derivatives of the benzene nucleus and use them to provoke fever. Paget reported a case of glycosuria due to the injection of 5 mg. of phlorhizin. Barbiturates have been employed to cause coma. Various chemical intoxications have been detected, whenever suspected, by close observation and repeated tests. Assumed deafness and blindness have been unmasked by specialized methods as well as induced abscesses, cutaneous ulcerations

due to common vesicant substances, voluntary mutilations and conjunctivitis. Nervous and mental simulations are the most difficult to uncover. Observation by itself does not suffice. It requires an infinite amount of patience and skill on the part of the physician to trap the offender. Often friendly counsels will prevent a recurrence of false representations.

Deaths

The decease of Pierre Marie has been reported. His work lay in the field of anatomopathologic and psychologic clinical research. He is regarded as probably the last representative of the school of Charcot.

Professor Weinberg of the Pasteur Institute and member of the Academy of Medicine is dead.

BERLIN

(From Our Regular Correspondent)

April 19, 1940.

Life Expectancy After Amputation

Investigations made by the Hamburg orthopedist zur Verth of the life span of persons who lost a leg or an arm upset the view largely entertained that such persons do not live as long as persons possessed of all their limbs. His conclusions are based on a large observational material (60,000 living and 3,600 dead). Most of the amputations were performed between the nineteenth and forty-fourth year. Zur Verth collected data to show the number of those amputated who were dead thirteen years later and compared these data with the normal mortality rate at each given age (19-44). The results were surprising. The mortality rate of the amputated, computed for each age level, was 3.68 per cent as compared with the mortality rate of 5.98 per cent for the rest of the male population. Differentiated according to the site of amputation, amputation of the arm presented a 4.15 per cent, amputation of the leg a 3.51 per cent and amputation of the arm and leg a 3.89 per cent mortality. The same results were obtained from observations on all those amputated during the World War and not confined to the age levels of 19 to 44. Accordingly, the life span of those amputated is more favorable at all age levels than that of the general population.

Blood as Legal Evidence

In a former issue of THE JOURNAL (Nov. 11, 1939, p. 1824), an official decision was reported on the legal value of blood tests for paternity. In the meantime further conversations have been conducted with experts in the field of serology and heredity that led to the following results: "Determination of the blood group constitutes a suitable method of excluding the paternity of a certain person in certain cases. Objections advanced against hereditary transmission or on the basis of possible mutations and modifications do not limit this fact." By "certain cases" are meant those blood groupings that admit conclusions "with absolute certainty."

Heritability of Pernicious Anemia

M. Werner systematically examined fifty-seven consanguineous groups with 525 members anamnesticly, clinically and by laboratory tests. In 9 per cent of the groups a second case of pernicious anemia was discovered. This can no longer be regarded as purely accidental. Special attention was given to a prepernicious diathesis, such as the presence of subacidity, blood modifications, tendency to anemia, leukopenia or lymphocytosis, paresthesia and glossal changes. In 5 per cent of the group such a diathesis was found. A significant element was its appearance in 15 per cent of siblings and in only 1 per cent of the more distant relatives. It could not be determined whether this diathesis would evolve into true pernicious anemia or whether the condition is to be regarded as that of forms which had not attained their complete development. Neither

constitutional characteristics nor definite predispositions could be ascertained. The possibility, however, of a causal connection between pernicious anemia and essential hypochromemia cannot be denied, though confirmatory observations are lacking. Four cases suggested this connection. As a result of these studies it is assumed that pernicious anemia represents a dominant hereditary predisposition with relatively limited manifestations. Marriage, or the begetting of offspring, from the point of view of race hygiene, is to be discouraged in certain cases of pronounced or of double familial heredity. Persons who show a prepernicious diathesis should be treated with liver.

Deaths

Prof. Werner Spalteholz, anatomist, died at the age of 79. He spent his entire university life in Leipzig. His school atlas of human anatomy appeared in 1895 and was repeatedly revised. He invented the method of making human and animal substances transparent, a method used frequently in health hygiene exhibits and for classroom demonstrations.

Prof. Hans Ziemann died at the age of 74. He was a noted student of tropical diseases. His monograph on malaria and blackwater fever is well known. He discovered the causative agent of frambesia and also *Trypanosoma vivax*.

Prof. August Borchard died February 19 in his seventy-sixth year. Together with Schmieden he published a textbook on war surgery and subsequently with Garré a textbook on surgery, which passed through several editions. For many years he was editor of the *Zentralblatt für Chirurgie*.

Prof. K. B. Lehmann, hygienist, died in his eighty-second year. A pupil of Pettenkofer, he established himself at the University of Würzburg in 1887 and retired in 1932. His special interests, evidenced by numerous publications, lay in the physiology of nutrition, industrial hygiene and bacteriology.

BUENOS AIRES

(From Our Regular Correspondent)

April 13, 1940.

Nutrition in Spanish America

In accordance with the recommendations of the third International Conference on Nutrition, which met in Buenos Aires (THE JOURNAL, Feb. 3, 1940, p. 425), a new course of studies was inaugurated March 27 in the Instituto Nacional de la Nutrición of Buenos Aires. Dr. R. M. Ortiz, president of the Argentine Republic, and other dignitaries of the state attended the opening ceremonies. Dr. Ortiz has shown a special interest in national nutrition and was instrumental in creating scholarships to enable physicians of Spanish-American countries to continue their studies in the national institute of Buenos Aires. Several scholarship holders from Mexico, Brazil, Uruguay and Paraguay registered for the courses. Prof. Pedro Escudero, director of the institute, in the inaugural lecture pointed out that the natives, centuries ago, had extensive knowledge of cultivation of the soil, of plants and of the conservation of perishable foods. Their food was chiefly vegetarian. The speaker attributed the collapse of native civilizations in Peru and Mexico and the lack of vigorous resistance to the Spanish invaders to a vegetable diet with its impairment of physical and mental vigor. After the conquest, food conditions as well as social conditions became steadily worse for the natives. Escudero also analyzed the present conditions of nutrition in Argentina, Chile, Colombia, Ecuador, Mexico and Brazil. His conclusions were that the present day nutrition of more than 50 per cent of Latin American people was insufficient in quantity, excessive in carbohydrates and deficient in fats and proteins. Likewise the mineral and vitamin food levels were low. Hence the majority of people in Spanish America were chronically underfed and suffered the degenerative effects of pronounced protein deficiency. The solution of these problems, he said, was not to be sought in culinary

recipes and public kitchens but had to be attacked by governmental social welfare. However, expert advice and cooperation were needed through all the stages from food production to food consumption.

Osteopetrosis in Argentina

Osteopetrosis is endemic in Madras, British India, and known as dental fluorosis in children. In October 1938 it was discussed in the sessions of the international headquarters of public health in Paris, at which time H. T. Dean, dental surgeon of the U. S. Public Health Service, Dr. Frank McCallum of Australia and Dr. M. T. Morgan of the British Ministry of Health read papers. In Argentina cases of osteopetrosis are constantly observed in a central district of the country. Though not hazardous to life, it induces increasingly in the course of the years bone disturbances and ailments due to fluorine salts in the drinking water. Since also the ligaments and surrounding tissues are affected, the bones lose their flexibility and elasticity, giving rise to motor disturbances, diffused pains and symptoms that resemble arthritis and rheumatism and may lead to invalidism. Investigations conducted by Drs. Capizzano, Valotta and Megy disclosed roentgenologically skeletal osteopetrosis in a large number of persons. The chemical analysis of the fluorine content of the water confirmed the observations. The disease manifests itself about the twentieth year. Pains due to the disease occurred mostly in the vertebrae, shoulders and hips.

There are several ways of attacking the problem. Water testing more than 1.5 mg. per thousand fluorine content could be cautioned against. Without reflecting on the chemical methods employed to neutralize fluorine-bearing water, it seems imperative to seek water sources that contain only minimal amounts of fluorine. Nor can the sanitary aspects of the situation be separated from the social. There is danger that without proper education the population of these fertile zones may become panicky and leave. Incidentally, the towns in these zones have been in existence for only twenty or thirty years, so that data of the effects of fluorine salts in water after long continued use on cattle and agriculture are incomplete. The national department of public health has appointed a clinical-radiologic-chemical research commission and is awaiting financial appropriations to begin to function. The governor of the province in which the affected districts lie has taken an interest in the problem. The examination of recruits in one of these districts showed that 73 per cent of 1,300 young men had characteristic striated teeth.

Marriages

LOGAN EVERETT SAWYER, Durlam, N. C., to Miss Winifred Lontz Maxwell in Clarksburg, W. Va., April 28.

GERHARD ECKMANN, Herrin, Ill., to Miss Sylvia Vilma Crosby at University City, Mo., May 5.

JAMES LEVI THOMSON, Lexington, Ky., to Miss Dorothy Mae Knowles of Woodard, N. C., May 15.

WILLARD CARTER GOODPASTURE, Chicago, to Miss Dorothy Ruth Bangs of Salina, Kan., May 4.

JOSEPH H. HUMPERT, Covington, Ky., to Miss Margaret Jane Leslie of Maysville, May 14.

GEORGE KNOX SPEARMAN, Anniston, Ala., to Miss Oleta Billingsley in Jasper, March 24.

WILLIAM GRAVES WOODIN, Dunkirk, N. Y., to Miss Barbara Mason of New York, May 18.

RALPH OLIN BOWDEN to Miss Margaret Blun, both of Savannah, Ga., May 3.

ROBERT KLEIN, Shanksville, Pa., to Miss Johanna Schwellb of Pittsburgh, May 2.

JEROME A. HILGER to Miss Helen Backer, both of St. Paul, January 20.

Deaths

Joshua Rosett * New York; University of Maryland School of Medicine, Baltimore, 1903; instructor, associate and assistant professor of neurology at Columbia University College of Physicians and Surgeons from 1919 to 1934 and since 1934 professor of neurology; member of the American Neurological Association and the Association for Research in Nervous and Mental Disease; served in the World War, during which time he was a member of the committee for public information and was sent to Russia with the American Expeditionary Forces; at various times a fellow of the Mount Sinai Hospital and the Montefiore Hospital, assistant attending neurologist to the Vanderbilt Clinic and Roosevelt Hospital, adjunct neurologist to the Neurological Institute; author of "Mechanism of Thought, Imagery and Hallucination" published in 1939, "Intercortical Systems of the Human Cerebrum" published in 1933 and many scientific works; aged 64; died, April 4, in Merida, Yucatan, Mexico, of carcinoma of the stomach.

Gorham Bacon, Yarmouth Port, Mass.; Bellevue Hospital Medical College, New York, 1878; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; formerly professor of otology at the Columbia University College of Physicians and Surgeons; at one time aural surgeon to the New York Eye and Ear Infirmary; consulting otologist to the Roosevelt and Minturn hospitals, Hospital for Ruptured and Crippled, New York, and Vassar Brothers' Hospital, Poughkeepsie, N. Y.; author of "Manual of Otology"; aged 85; died, March 5.

Joseph Francis Geisinger * Richmond, Va.; University College of Medicine, Richmond, 1912; member of the Southern Surgical Association, the American Association of Genito-Urinary Surgeons and the American Urological Association; fellow of the American College of Surgeons; past president of the Virginia Urological Society; professor of clinical urology at the Medical College of Virginia; served during the World War; urologist to Stuart Circle Hospital; aged 56; died, April 15, of arteriosclerosis and dissecting aneurysm.

George Hall Conklin, Superior, Wis.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1888; member of the State Medical Society of Wisconsin; served during the World War; at one time health commissioner and county physician; formerly medical director and superintendent of the Middle River Sanatorium, Hawthorne; aged 73; died, March 10, in St. Mary's Hospital, of uremia, leukemia and pyelonephritis.

Simon Pendleton Kramer, Fort Thomas, Ky.; Medical College of Ohio, Cincinnati, 1888; at one time professor of clinical surgery at the University of Cincinnati College of Medicine; past president of the Academy of Medicine of Cincinnati; member of the American Neurological Association; veteran of the Spanish-American and World wars; surgeon to the Cincinnati Hospital from 1910 to 1925; aged 72; died, April 12, in the United States Marine Hospital, Baltimore.

John Burnworth Critchfield, Lock Haven, Pa.; Medico-Chirurgical College of Philadelphia, 1898; veteran of the Spanish-American and World wars; formerly member of the state legislature; for many years chief of the tuberculosis division of the state health department; member of the Medical Society of the State of Pennsylvania; aged 64; died, March 25.

Arthur H. Cleveland, Chadds Ford, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1889; Medico-Chirurgical College of Philadelphia, 1899; formerly emeritus professor of laryngology at the Medico-Chirurgical College of Philadelphia; at one time on the staff of the Presbyterian Hospital, Philadelphia; aged 75; died, March 26.

Gilbert Mombach * Cincinnati; Medical College of Ohio, Cincinnati, 1909; member of the Central Association of Obstetricians and Gynecologists; past president of the Cincinnati Obstetrical Society; aged 52; on the staff of the Jewish Hospital, where he died, April 9, of pneumococcal meningitis, type III, mastoiditis and labyrinthitis.

Leckinski Ware Spratling * Medical Director, Captain, U. S. Navy, retired, Waverly, Ala.; University of the City of New York Medical Department, 1890; entered the navy April 16, 1890, and retired March 12, 1921, on his own application after thirty years' service; fellow of the American College of Surgeons; aged 72; died, March 20.

John Peter Miller * Grand Forks, N. D.; Baltimore Medical College, 1906; past president of the North Dakota Academy of Ophthalmology and Otolaryngology; served during the

World War; on the staffs of the Deaconess Hospital and St. Michael's Hospital; aged 60; died, April 18, of coronary thrombosis.

John Allen Caruthers, Baton Rouge, La.; University of Texas School of Medicine, Galveston, 1899; fellow of the American College of Surgeons; aged 64; died, April 10, at the Baton Rouge General Hospital, of a fractured hip and arm due to a fall and cerebral hemorrhage and paralysis agitata.

Frederick Morell Houghtaling, Sandusky, Ohio; Baltimore Medical College, 1896; member of the Ohio State Medical Association; city and county health officer; served during the World War; aged 66; died, April 17, in the United States Marine Hospital, Cleveland, of cerebral hemorrhage.

Isaac Cuthbert Evans Jr., Columbus, Ga.; Medical College of Alabama, Mobile, 1899; formerly county physician, county health officer, city physician and health officer; on the staff of the Muscogee Tuberculosis Sanatorium; aged 67; died, April 19, of cerebral hemorrhage and arteriosclerosis.

Thomas F. Black * Providence, R. I.; College of Physicians and Surgeons, Baltimore, 1890; an Affiliate Fellow of the American Medical Association; formerly on the staffs of the Rhode Island Hospital and St. Joseph's Hospital; aged 76; died, April 2, of arteriosclerosis and heart disease.

Clayton James Hyslop, Chippewa Falls, Wis.; Northwestern University Medical School, Chicago, 1916; member of the State Medical Society of Wisconsin; served during the World War; aged 49; died, March 13, in St. Joseph's Hospital, of cirrhosis of the liver and diabetes mellitus.

William Samuel Knapheide, Quincy, Ill.; Chaddock School of Medicine, Quincy, 1889; Long Island College Hospital, Brooklyn, 1890; member of the Illinois State Medical Society; for many years on the staff of the Blessing Hospital; aged 74; died, April 8, of cerebral hemorrhage.

Presley Louis Pound, Wyandotte, Mich.; Tulane University of Louisiana School of Medicine, New Orleans, 1916; served during the World War; aged 47; died, April 1, in the Veterans Administration Facility, Dearborn, of hypertension, arteriosclerosis and myocarditis.

John Martin Elderdice, Salisbury, Md.; University of Maryland School of Medicine, Baltimore, 1905; served during the World War; aged 61; on the staff of the Peninsula General Hospital, where he died, April 10, of rheumatic cardiovascular disease.

George Adam Stover, South Boston, Va.; University College of Medicine, Richmond, 1900; member of the Medical Society of Virginia; past president and secretary of the Halifax County Medical Society; aged 66; died, April 6, of cerebral hemorrhage.

William M. Bogart * Stevenson, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1900; past president of the Jackson County Medical Society; aged 64; died, April 7, in the Barnes Hospital, St. Louis, of carcinoma of the lung.

Seth Hattery, Massillon, Ohio; Bellevue Hospital Medical College, New York, 1879; member of the Ohio State Medical Association; bank president; formerly member of the city council and board of health; aged 90; died, April 3, of arteriosclerosis.

George Bailey Goheen, Coalport, Pa.; Jefferson Medical College of Philadelphia, 1901; member of the Medical Society of the State of Pennsylvania; for many years member of the board of education; aged 67; died, March 23, of diabetes mellitus.

Julius Jesse Du Bose, Maplesville, Ala.; Atlanta Medical College, 1895; member of the Medical Association of the State of Alabama; aged 70; died, April 7, in the Baptist Hospital, Selma, of adenoma of the prostate and bronchopneumonia.

Milford M. Brubaker, Troy, Ohio; Eclectic Medical Institute, Cincinnati, 1896; member of the Ohio State Medical Association; aged 67; on the staff of the Stouder Memorial Hospital where he died, April 10, of coronary thrombosis.

Louis Francis Kelling * Lakefield, Minn.; St. Louis College of Physicians and Surgeons, 1898; veteran of the Spanish-American War; aged 65; died, April 6, of septic pulmonary embolism following extraction of abscessed teeth.

Walter Thomas Diver * Troy, N. Y.; Albany (N. Y.) Medical College, 1907; fellow of the American College of Surgeons; on the staff of the Troy Hospital; aged 56; died, April 8, in Miami, Fla., of coronary thrombosis.

Ruey O. Ford, Gaylord, Mich. (licensed in Michigan in 1900); member of the Michigan State Medical Society; aged 78; on staff of the Mercy Hospital, Grayling, where he died, March 30, of intestinal obstruction.

William Pinson Roberts, Dothan, Ala.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Medical Association of the State of Alabama; on the staff of the Frasier-Ellis Hospital; aged 67; died, March 2.

Jesse M. Brooke, Peebles, Ohio; Starling Medical College, Columbus, 1896; member of the Ohio State Medical Association; aged 69; died, April 2, of acute dilatation of the heart following an acute gastro-enteritis.

Lewis Greenberg @ New York; University and Bellevue Hospital Medical College, New York, 1916; on the staffs of the Beth Israel Hospital and the Hospital for Joint Diseases; aged 53; was found dead, March 10.

David Shuler Black, Columbia, S. C.; Memphis (Tenn.) Hospital Medical College, 1895; member of the South Carolina Medical Association; aged 68; died, April 1, of carcinoma of the lung and chronic nephritis.

Grace Hovey Griffin, Houston, Texas; University of Buffalo School of Medicine, 1917; formerly on the staff of the Rochester (N. Y.) State Hospital; aged 54; died, April 2, of chronic lymphatic leukemia.

Roy Irwin Curry, Mansfield, Ohio; Western Reserve University School of Medicine, Cleveland, 1922; member of the Ohio State Medical Association; aged 46; died suddenly, April 3, of coronary thrombosis.

Clyde D. Elder, Marietta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1905; member of the Medical Association of Georgia; on the staff of the Marietta Hospital; aged 63; died, March 9.

Bond Stow, Crestwood, N. Y.; Chicago Medical College, 1889; at one time on the staff of the Metropolitan Hospital, New York; aged 75; died, March 28, in Washington, D. C., of coronary thrombosis.

Maurice A. Hoover, Grand Island, Neb.; Medical College of Indiana, Indianapolis, 1881; aged 81; died, March 4, in the Veterans Administration Facility, Lincoln, of arteriosclerosis and heart disease.

Peter Nicklaus Delus, Louisville, Ky.; Hospital College of Medicine, Louisville, 1899; veteran of the Spanish-American War; aged 63; died, April 7, in the United States Marine Hospital of uremia.

Richard M. Jones, Louisville, Ky.; University of Louisville Medical Department, 1893; member of the Kentucky State Medical Association; aged 70; died, April 1, of cerebral hemorrhage.

William Lippencott Woodruff, Saranac Lake, N. Y.; Medical College of Alabama, Mobile, 1896; aged 76; died, March 8, in the Saranac Lake General Hospital of bronchopneumonia.

Clarence V. Gilmore, Hickory, Miss.; Louisville (Ky.) Medical College, 1893; member of the Mississippi State Medical Association; aged 69; died, April 3, in Meridian of pneumonia.

George Albert Causey, Swifton, Ark.; Memphis (Tenn.) Hospital Medical College, 1900; member of the Arkansas Medical Society; served during the World War; aged 66; died, March 20.

James William Stockman, Red Cloud, Neb.; Hahnemann Medical College and Hospital, Chicago, 1903; aged 66; died, March 6, of cardiac asthma and dilatation of the descending aorta.

Lester Lance Lightner, Ideal, Ga.; Southern College of Medicine and Surgery, Atlanta, 1913; member of the Medical Association of Georgia; aged 57; died in April of pneumonia.

Robert Samuel Martin, San Francisco; Rush Medical College, Chicago, 1895; aged 77; died, March 13, in the Lane Hospital of bronchopneumonia, arteriosclerosis and nephritis.

John Kay, Perrin, Mo.; Northwestern Medical College, St. Joseph, 1893; at various times county health officer, county physician and county coroner; aged 70; died, March 15.

Otto B. Ilch, Hamburg, Mo.; Marion-Sims College of Medicine, St. Louis, 1898; served during the World War; formerly county coroner; aged 71; died, April 12, of carcinoma.

Arthur Furman Kraetzer @ New York; Cornell University Medical College, New York, 1916; on the staff of the Knickerbocker Hospital; aged 48; was found dead, March 4.

Seldon William Cohn, Fulton, Ky.; Medico-Chirurgical College of Philadelphia, 1899; member of the Kentucky State Medical Association; aged 61; died, February 6.

Ellen Dell Dresser, Theresa, N. Y.; Hahnemann Medical College and Hospital, Chicago, 1888; aged 77; died, March 30, of carcinoma of the right breast and the liver.

Karl Herbert Hall, East St. Louis, Ill.; Atlanta (Ga.) College of Physicians and Surgeons, 1901; served during the World War; aged 62; died, April 14, of pneumonia.

Lois Leverett Nelson, Berkeley, Calif.; Cooper Medical College, San Francisco, 1890; aged 82; died, March 21, of coronary thrombosis and arteriosclerosis.

Bascom Hugh Birney, Burkes Garden, Va.; Rush Medical College, Chicago, 1886; aged 82; died, April 19, in Miami, Fla., of coronary occlusion and arteriosclerosis.

Autilio John D'Alleva @ Detroit; Wayne University College of Medicine, Detroit, 1937; aged 27; was found dead in April of carbon monoxide poisoning.

Edwin Leopold Rose, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; aged 73; died, March 17.

Don A. Anderson, Indianapolis; Medical College of Indiana, Indianapolis, 1895; member of the Indiana State Medical Association; aged 67; died, March 17.

Frank Andrew Smith, Winnipeg, Man., Canada; Manitoba Medical College, Winnipeg, 1906; aged 58; died, April 11, in St. Joseph's Hospital of uremia.

General Marion Center, Campton, Ky. (licensed in Kentucky in 1894); member of the Kentucky State Medical Association; aged 77; died, March 5.

Charles Sidney Seely, Los Angeles; State University of Iowa College of Medicine, Iowa City, 1897; aged 62; died, March 18, of coronary embolus.

William T. Cameron, Mace, W. Va.; College of Physicians and Surgeons, Baltimore, 1889; aged 73; died, April 12, in Mill Creek of cerebral hemorrhage.

Edgar Forrester, Toronto, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1884; L.R.C.P., Edinburgh, Scotland, 1884; died, March 4.

Ernest Lynwood Blackmun @ Stockton, Calif.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1901; aged 66; died, March 3.

J. Edward Bryson, Wayland, Mich.; Physio-Medical College of Indiana, Indianapolis, 1895; aged 78; died, March 31, of cerebral hemorrhage.

William A. Marsh, Green Lawn, W. Va.; College of Physicians and Surgeons, Baltimore, 1904; aged 79; died, April 17, of cerebral hemorrhage.

Franklin V. Walker, San Bernardino, Calif.; Barnes Medical College, St. Louis, 1906; aged 76; died, March 31, of chronic myocarditis.

Solomon Morgan Brian, Winnfield, La.; Memphis (Tenn.) Hospital Medical College, 1907; aged 61; died in April of coronary occlusion.

George N. Butchart, Hibbing, Minn.; Omaha Medical College, 1895; aged 68; died, April 6, of arteriosclerosis and coronary occlusion.

Lewis Payton, Muncie, Ind.; Curtis Physio-Medical Institute, Marion, Ind., 1883; aged 88; died, April 13, of mitral valvular disease.

John Bohlander, Cincinnati; Cincinnati College of Medicine and Surgery, 1883; aged 79; died, April 19, of chronic nephritis.

James R. Phillips, Almo, Ky.; University of Louisville Medical Department, 1892; aged 82; died, April 7, of pneumonia.

Henry Benjamin Treacle, Richmond, Va.; Baltimore University School of Medicine, 1893; aged 65; died, March 30.

Carl Henry Senn @ Williamsport, Pa.; Medico-Chirurgical College of Philadelphia, 1901; aged 62; died, March 12.

Prosper Deming White, Detroit; Trinity Medical College, Toronto, Ont., Canada, 1894; aged 68; died, March 23.

Clem C. Ballard, Gap Mills, W. Va.; Maryland Medical College, Baltimore, 1905; aged 61; died, March 31.

William H. Weeks, Kennesaw, Ga.; Chattanooga (Tenn.) Medical College, 1906; aged 68; died, March 15.

John C. Jacob, Detroit; Detroit College of Medicine, 1895; aged 67; died, April 22, of chronic myocarditis.

Samuel Stith, Pensacola, Fla.; Kentucky School of Medicine, Louisville, 1894; aged 69; died, March 9.

Harry Stanton McCard, Baltimore; Rush Medical College, Chicago, 1900; aged 66; died, March 19.

Robert E. Johnson, Lebanon, Tenn. (licensed in Tennessee in 1889); aged 83; died, March 29.

Correspondence

THE VALIDITY OF RECORDS OF PRIVATE PATIENTS IN THE EVALUATION OF RESULTS OF TREATMENT

To the Editor:—In a special article entitled "The Drug Therapy of Epilepsy" in *THE JOURNAL*, April 6, page 1347, Dr. William G. Lennox makes suggestions tending to show that the "records" from which I obtained the data on which I based the conclusions of the efficacy of sodium bromide in preventing the seizures of patients suffering from epilepsy (Remissions of Attacks in Epilepsy Treated with Sodium Bromide, *THE JOURNAL*, Feb. 26, 1938, p. 632) "may be artificially optimistic." Dr. Lennox, I assume, meant that optimism born of the conclusions reached from my data was "artificial," since, as he estimates, the data were derived from a material which was not homogeneous but was loaded with mild cases. I quote his paragraph dealing with this suggestion:

Statistics concerning patients receiving active medical attention need to be studied with respect to their source. On the one hand the records of clinicians may be artificially optimistic. Thus Pollock in 1937 saw eighty-five patients whom he had treated with bromides for more than a year. Of these, thirty-nine (46 per cent) had been without seizures for a year or more. He must have been treating an unusually mild group, for 72 per cent of the eighty-five had a previous history of a remission lasting a year or more. Probably the surviving clientele of any physician is weighted with favorable cases, for epileptic patients are notorious shoppers. They know that time is the essence of help and quite properly refuse to be under the treatment of one physician year after year if they do not experience improvement. Also the greater his reputation (and his fees) the fewer the number who can afford to continue profitless treatment.

To meet the objection appearing further in his article that spontaneous remissions of a year or longer occur without apparent cause in about 20 per cent of patients (a statement the basis of which I would like to know), it is of interest to point out that, in the group referred to while under treatment by sodium bromide, eleven patients had had no convulsions for more than one year, ten for more than two years, four for more than three years, five for more than four years, one for more than five years, three for more than seven years and five for more than eight years when last seen in 1937.

To support his conclusion that I must have been treating an unusually mild group, Lennox cites the prolonged remissions lasting for a year or more in 72 per cent of the eighty-five cases treated with sodium bromide. Combining the thirty-nine cases already described in which terminal remissions were brought about with the group in which remissions lasting over a year were brought about and then for one reason or another an attack occurred, there were sixty-one cases (71.7 per cent). The remissions had lasted more than one year in seventeen cases, more than two years in twelve cases, more than three years in eight cases, more than four years in five cases, more than five years in three cases, more than six years in two cases, more than seven years in four cases, more than eight years in six cases, more than nine years in one case and more than ten years in three cases. Thus, in twenty-two cases in which seizures had been stopped by the use of sodium bromide for periods of from one to more than ten years, with a mean of more than three years, an attack occurred often because the patient had after a long period of freedom from attacks neglected his medication.

That patients do not continue ineffectual treatment is almost axiomatic, but before it can be held that the good results reported from my material were brought about because a large portion of the total number of patients whom I had treated had gone elsewhere because of the inefficiency of the treatment, leaving only a small number whom I had benefited, it must be shown, if one is comparing the efficacy of treatment by sodium

bromide with that of dilantin sodium, that only a small number of ineffectually treated patients leave the practices of Dr. Lennox and the other authors whose statistics he seems to accept without question, and that larger portions of effectively treated patients remain in their practices. To assume that when good results are obtained by the use of sodium bromide the material must be loaded with mild cases and that when successful results are obtained with dilantin sodium it is not so loaded seems to me to be illogical.

It is well known that in a consulting practice only a small portion of the total number of patients seen continue to be treated by the consultant. The majority are sent back to the physician who referred the patient.

During the year 1937, in the material on which I reported, there were only eleven patients whom I first saw that year and had been treated by me for less than a year. This would indicate that the accrual of patients to the number I would continuously treat was eleven for that year. Since a consultant's practice grows from year to year, I think it would be fair to judge this as representing a yearly accrual for the preceding ten years. In ten years I should have accrued a little over a hundred patients. It would appear, therefore, that not a very large proportion of the patients whom I would regularly treat had left my practice.

In the total group of ninety-six cases there were thirty-three in which the cause of the convulsive disorder was attributed to a disease or injury of the brain. I maintain that the group reported on represents a fair cross section of extramural cases treated by any physician in private practice.

There is little difference between the surviving clientele of a physician in private practice and that in an extramural clinic. In fact, in my experience patients attending the Montgomery Ward Clinics of Northwestern University Medical School change their allegiance far more frequently than do private patients.

In the clinic for epilepsy, usually numbering between 100 and 120 active cases, 127 new patients were admitted and 103 patients failed to return from 1937 to 1940. It cannot be said that the thirty-odd patients who leave the clinic yearly do so because their treatment is ineffectual. In 1937 thirty-eight patients who had withdrawn from the clinic during the preceding year were canvassed by the social service department: six patients had died and four could not be found; of the remaining twenty-eight, no further attacks had occurred in fourteen (50 per cent).

Results equal to or better than mine have been reported from the Clinic for Epilepsy of the Northwestern University Medical School by Stone and Arieff (Stone, T. T., and Arieff, A. J.: Remissions in Epileptic Patients Treated with Sodium Bromide in an Outpatient Clinic, *Arch. Neurol. & Psychiat.* 43:299 [Feb.] 1940). There were sixty patients who had been treated for more than a year with sodium bromide. In thirty-three cases (55 per cent), all attacks were stopped for a year or more in thirteen, for more than two years in nine, for more than three years in eight and for more than four, five and nine years in one each. In thirty-eight additional cases treated from six to twelve months, attacks had stopped for a period of six or more months in fourteen cases. Thus, of the ninety-eight cases treated for six months or longer, the convulsions had been stopped in forty-seven cases for more than six months (48 per cent).

If the material both in private practice and in extramural clinics is overloaded with mild cases, is it any less thus overloaded when the patients are treated by dilantin sodium than by sodium bromide? Would it not be wise to wait for a period of a few years and then, when only a few patients leave the practice of physicians and clinics because of the efficacy of dilantin sodium, attempt another guess as to the overloading of my material with mild cases?

Dr. Lennox rightly says that statistics concerning patients receiving active medical attention need to be studied with respect to their source. Would it not be fair at least to suggest that, although the greater the reputation (and the fees) of a physician the more likely would patients not continue profitless treatment, leaving behind the mild cases, nevertheless a physician of greater reputation, whatever his fees may be, might treat the patient and make observations of results more efficiently than some others? This does not imply that because Dr. Lennox mentions my name in the quoted paragraph I have identified myself with such a physician and hasten to say that my fees have never been known to frighten any one away.

LEWIS J. POLLOCK, M.D., Chicago.

LEAD AS A HAZARD

To the Editor:—Two months ago, in the January 20 issue of THE JOURNAL, you published an article by Drs. Rathmell and Smith to which I must take exception, particularly as it followed so soon after a paper by Dr. H. B. Williams in which also many experts doubt the diagnosis. In this article the child is supposed to have had acute lead poisoning due to only an infinitesimal quantity of lead obtained from orange juice put into an aluminum container. It seems to me unwise to give great publicity to a so-called established case of lead poisoning in a child who is said to have ingested less than 0.02 mg. of lead. Most persons ingest more than that every day in their drinking water, with absolutely no known deleterious effects. An analysis of the dishes was mentioned but no report on this was made, and it is obvious that no accusation can be made without that, particularly as aluminum dishes should contain practically no lead. Besides, lead does not usually give the acute symptoms ascribed to it in this article. One substance that I know of, namely antimony, may give gastrointestinal symptoms such as vomiting, but to incriminate an infinitesimal amount of lead without knowing whether antimony was present in the juice is distinctly unscientific.

I write this vigorous letter because too much publicity is being given to minor exposures to lead these days. This is particularly true with regard to lead taken by mouth, which is so much less toxic than inhaled lead. That lead may produce deleterious effects there can be no question, but there is no evidence that a small fraction of a milligram can produce the effects ascribed to it in this article.

JOSEPH C. AUB, M.D., Boston.

GLOVE DERMATITIS

To the Editor:—In THE JOURNAL, April 20, page 1523, appeared an article by Drs. Norwood and Evans on glove dermatitis, which I read with considerable interest. On Dec. 4, 1939, I saw a patient with the same type of vesiculation, exudation, crusting and scaling as that described by Norwood and Evans. This patient gave a history of contact with tetra-ethyl lead in gasoline while working in and around the oil fields near our city. It may be of interest that the rationale of my mode of therapy consisted of ultraviolet irradiation to the volar and dorsal surface of both hands for sixty seconds at daily intervals for five days. As a supplement, I used salicylic acid 2 per cent, phenol 1 per cent, and Saratoga and rose water ointment in sufficient quantity for a base. The use of white cotton gloves were advocated as mittens to retain the ointment.

The surprising feature was the response to this treatment and regimen. The patient was discharged December 11 as having made an uneventful recovery, after five exposures to ultraviolet radiation and the local ointment described.

CHARLES C. VERSTANDIG, M.D., Houston, Texas.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

REFRACTORY PERIOD AFTER TUBERCULIN TEST

To the Editor:—Could you give me references on the refractory period following the intradermal test for tuberculosis in cattle? Do the same principles hold good in man as in cattle when the latter are "plugged" just before the visit of the veterinarian?

G. H. Hoxie, M.D., Kansas City, Mo.

ANSWER.—The "plugging" or "doping" of cattle with tuberculin for fraudulent purposes came into being soon after it was learned by Gutman of Russia, Bang of Denmark and Pearson, Cotton and Russell of the United States that some animals extensively diseased with tuberculosis and in or approaching the terminal stage did not react to the tuberculin test. This was believed to be due to the fact that they were already saturated with the products of the tubercle bacillus. It was then learned that the subcutaneous administration of one or more large doses of tuberculin would have the same effect; that is, the animal would not react to the usual dose of tuberculin even though tuberculosis was present. Certain dishonest cattle dealers and importers saw that they might profit through buying tuberculous cattle at a low price, give them one or more large doses of tuberculin and sell them as nontuberculous at a high price. This practice was carried out extensively in Europe and the Americas. Dr. Charles H. Mayo, who purchased a herd of thirty-four thoroughbred cattle in the East was probably deceived in this manner. When he bought them he insisted that they be tested with tuberculin and none reacted. However, on the first testing after they had reached his farm sixteen reacted strongly to the test.

In the early part of this century the cattle breeders of Argentina were putting forth every effort to keep tuberculosis from their herds. They were willing to pay enormous prices for nontuberculin reactors imported from Europe. Dealers took advantage of this fact, bought tuberculous cattle in Europe and arranged to have large doses of tuberculin administered aboard ship. When animals arrived in Buenos Aires they were always kept in quarantine for forty days, after which they were officially tested with tuberculin. Nonveterinary inspectors were employed to guard them while under quarantine. However, detectives discovered that during the night these inspectors were administering large doses of tuberculin so that at the end of the forty day period of quarantine the animals would not react to the official test (*Am. Vet. Rev.* 32:170 [Nov.] 1907).

In this country "plugging" continued to be a serious practice (*ibid.* 35:386 [July] 1909). Many cattle breeders lost large sums of money this way. When it was learned what was actually happening, Malm discovered that the desensitization is not permanent (*Rev. gén. de méd. vét.*, 1903, p. 401). In fact, it persisted only a few weeks. Therefore veterinarians advocated that buyers purchase animals subject to the results of tuberculin tests administered a certain period (usually sixty days) after they had been received from the seller.

Hauptmann showed that, when small but constant doses of tuberculin are administered at intervals of approximately two months, sensitiveness of the tissues disappears after the second or third administration and does not reappear for from seven to ten months. However, by this method the time element was too great for dealers and importers.

Vallee (*Ann. d'Inst. Pasteur* 18:545, 1904) made a careful study of this phenomenon with the thought of discovering some way to outwit dishonest persons. The usual method of administering the tuberculin test consisted of, first, taking the animal's temperature to be sure that it was normal (the normal temperature of cattle is approximately 101.3 F.) and then to introduce subcutaneously 0.25 cc. of tuberculin. Beginning six hours later, the temperature of the animal was taken at least once every three hours over a period of from sixteen to twenty-four hours. If tuberculosis was present the temperature elevation began to appear in from six to ten hours but occasionally as late as from sixteen to eighteen hours. A rise of 2 degrees was considered to be a definite reaction. However, Vallee found that by administering a dose twice as large as usual, that is, 8 cc. of a 1:10 dilution of tuberculin for large animals and 4 cc. of this dilution for small animals, a definite temperature elevation occurred when tuberculosis was present much sooner in

"plugged" cattle than in others. Indeed, he began to take the temperature two hours after the test was administered and every two hours thereafter to about the fourteenth hour. Any animal whose temperature increased 1.5 degrees following the administration of tuberculin he regarded as tuberculous and any from 1.5 degrees down to 0.8 degree he considered suspicious.

Moussu, who first used the intradermal test for cattle, while Mantoux developed it for man, found that a subcutaneous injection of a massive dose of tuberculin at the time of or just before the administration of the intradermal test interfered considerably with the reaction of the latter.

In testing human beings with tuberculin it has long been known that, regardless of the method used, severe acute forms of tuberculosis, such as meningitis, pneumonia and miliary disease, as well as extensive and terminal stages of chronic tuberculosis, interfere with or actually render useless the tuberculin test; that is, with such large numbers of tubercle bacilli present in the body large quantities of tuberculo-protein are liberated and the tissues are desensitized. One may desensitize human tissues by graduated doses of tuberculin beginning with those so small as to produce no reaction and gradually increasing the dose until large amounts of tuberculin can be administered with no reaction. Obviously, in the latter part of this desensitization process the usual test dose of tuberculin meets no response on the part of the tissues. Indeed, Rich has done some valuable experimental work in desensitization in an attempt to remove the dangers of allergy when reinfections occur. Probably the administration of one or a few large doses of tuberculin would temporarily desensitize the tissues in man, as it does in animals. However, no well informed physician would take the risk of administering such doses to a human subject unless by further research an entirely safe method is devised.

CARDIAC DILATATION AND HYPERTROPHY IN ARTERIOVENOUS ANEURYSM

To the Editor:—Why is it that the heart responds by enlargement to the increased demands made on it, as in arteriovenous aneurysm? Is the biologic mechanism involved known?

Thomas I. O'Driscoll, M.D., Philadelphia.

ANSWER.—The causal relationship between arteriovenous aneurysm and cardiac damage was first demonstrated experimentally by Mont R. Reid (*Bull. Johns Hopkins Hosp.* 31:43 [Feb.] 1920) and since then numerous investigators in both the clinical and the experimental field have established that this is true. The heart of a patient with an arteriovenous fistula responds by dilatation at first and then hypertrophy, since there is an abnormal strain placed on the heart because of the short circuiting of the arterial blood into the venous channels. This increases the venous return to the heart and therefore the load that must be cared for by it. If the cardiac output per stroke is roughly 60 cc. and 20 cc. is lost directly into the venous circulation, the venous return will be proportionately greater and the heart will attempt to expel this increased amount, in accordance with Starling's law (Starling, E. A.: *Linares Lecture "The Law of the Heart,"* London, 1918). This is accomplished by increased filling and hence dilatation of the heart. It has been estimated that of the enlargement of the heart in arteriovenous aneurysm from 75 to 95 per cent is dilatation, which is a quickly reversible process. If the dilatation is present long enough, hypertrophy ensues and is more slowly reversible.

To substantiate this theory of the hypertrophy of the heart further, experimental observations have been undertaken to determine how great the cardiac output is in such cases. Harrison, Dock and Holman (*Heart* 11:337 [Dec.] 1924) showed that in one of their experimental subjects the cardiac output rose 100 per cent. Carter Smith (*Arch. Int. Med.* 48:187 [Aug.] 1931) found that the cardiac output of a patient with an arteriovenous fistula decreased 58 per cent following closure of the opening. Absolute results of the determination of the cardiac output in such cases are not accurate, owing to the passage of a good portion of the blood (containing the determining substance used, such as acetylene) directly back into the venous system, but comparative results such as these are worth considering. The amount of increase in cardiac output is usually directly proportional to the caliber of the vessels involved, the size of the opening and the proximity to the heart. Emile Holman (*Arteriovenous Aneurysm*, Macmillan Company, New York, 1937) and others have reported an increase in the circulating blood volume in such cases, but Reid and McGuire (*Ann. Surg.* 108:643 [Oct.] 1938) failed to confirm these observations as occurring in cases in which cardiac enlargement but not congestive failure has developed.

Lewis and Drury (*Heart* 10:373, 1932) state that it is their opinion that the cause of the cardiac enlargement is due to an

impaired coronary blood flow as a result of the lowered diastolic pressure. Others, however, have shown that the coronary blood supply is decreased little if at all in such conditions. Since the work of the heart is increased, the lack of a corresponding increase in coronary flow leads to a relative coronary flow insufficiency and this factor aids in the development of dilatation and later hypertrophy of the heart.

To summarize, the main factor in the development of cardiac dilatation and its hypertrophy in arteriovenous aneurysm is the increase in the amount of blood that the heart has to pump. It follows, therefore, that the greater the increase in output the greater the attendant symptoms and heart failure and the more rapid their onset. However, the exact ultimate mechanism for hypertrophy in this or any other condition is not established, although increased work, relative anoxemia and dilatation are intimately linked in the process.

SWEAT AND BODY ODOR

To the Editor:—What are the qualitative and quantitative analyses of sweat of white persons and of Negroes? It is understood that some material is excreted by the Negro in the tropics that is repelling to insect life.

M.D., California.

ANSWER.—As far as is known there are no important qualitative or quantitative differences in the sweat of white persons and of Negroes. There have been no reports showing that the amount of salts or lactic acid, for example, are in any way different. To be sure there are some differences in odor of the sweat of Negroes and of white persons, but this is dependent, for the most part, on the fatty acids and oils present. These odoriferous substances are secreted for the most part by the apocrine glands. Most of these glands are situated in the axilla, with fewer of them present over the pubis and around the anus and the nipples. Most mammals show examples of skin glands excreting substances that have strong odors. Most observers believe that in man these substances are secreted largely by sweat glands. A few, however, ascribe these materials to secretions of the oil glands. In any event they impart to the individual sweat, whether they originally are secreted in the sweat itself or not, a distinctive odor, peculiar to each individual. In most mammals odors from secreted materials from the skin are increased during the breeding season. The same is true for man during periods of excitement.

Some people show a much greater tendency to be attacked by various insects such as the mosquito. It is not entirely known just why there is this difference of attraction for insects by the skin of different persons. It is probable that the distinctive odors characteristic of the individual skin may have something to do with attracting or repelling insects. In a search of the literature nothing authentic on this point was found recorded. It is said that in the tropics white men are attacked more often by insects than are Negroes. It is further stated that after a certain stay there most white people become acclimated so that they become annoyed less often.

GONORRHEAL INFECTION AFTER MENOPAUSE

To the Editor:—A patient was infected with gonorrhea just past the menopause. She developed gonorrhea, endocervicitis, proctitis and infection of Skene's glands. I would appreciate your help in the treatment of this case as I am having difficulty in clearing the infection. M.D., Michigan.

ANSWER.—It is assumed from the difficulty in clearing up the infection that the condition is now in the chronic state. First the patient's general resistance should be built up and sexual stimulation and intercourse absolutely avoided. The use of alcohol should be forbidden. For pain, local heat or cold may be used or mild anodynes taken.

Local treatment should be simple and not excessive. Strong antiseptics usually are of no assistance and frequently do harm by causing extension of the disease above the internal os. The external genitalia should be kept clean. If there is a profuse cervical discharge it may be removed by means of hydrogen peroxide or a Luer syringe without a needle. Local applications of 2 per cent silver nitrate or 4 per cent mercurochrome are helpful but not curative. If the cervicitis is definitely of the chronic type, the best treatment is by means of some electrical apparatus, either the nasal tip cautery, electric conization or electrocoagulation. However, it is important not to cauterize the cervix too deeply or too high in the cervical canal.

The simplest treatment of infected Skene's glands consists of injection of silver nitrate, mercurochrome or other substance into each gland through its duct. For this purpose an ordinary Luer syringe may be used but the needle must have a dull tip and not a sharp point. If this treatment is unsatisfactory or

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not feasible, a better and more certain way is to use an electric current or high frequency current, which will nearly always destroy the glands and eradicate this source of infection.

Gonorrheal involvement of the rectum is more common than is believed. This condition may be treated by means of suppositories containing silver proteinate or mercurochrome, the suppositories to be inserted into the rectum after each bowel movement.

The instillation of acid capsules (No. 11 size containing 80 per cent β lactose and 20 per cent boric acid) into the vagina and acid douches (4 tablespoonfuls of vinegar [5 per cent U. S. P. acetic acid] to 2 quarts of water) may be beneficial.

Sulfanilamide may be helpful in this case. A satisfactory average dose is 2.6 Gm. (40 grains) daily, 0.65 Gm. (10 grains) after each meal and 0.65 Gm. at bedtime. Many patients have disagreeable and even dangerous symptoms from this drug, so great care must be exercised in using it. The size of the dose administered apparently has little to do with the toxic symptoms. Furthermore, rapid relief of symptoms following the use of sulfanilamide does not constitute a cure; hence slides and cultures must repeatedly be made for a long time following therapy.

numerous investigations and some controversy. Recently introduced methods of studying cutaneous disinfection quantitatively appear to have settled the question, showing that mercurochrome, in company with certain other mercurials, is not an efficient germicide when applied to the skin, although it does produce a more or less aseptic cutaneous surface because of the formation of a filmlike structure which covers over the bacterial flora that are present without much reduction. Consequently, neither aqueous nor alcoholic solutions of mercurochrome can be considered fully satisfactory or trustworthy in preparation of the field of operation.

Large quantities of mercurochrome continue to be manufactured and sold. The largest portion probably finds its way into private homes to be used on scratches, abrasions and cuts. Here, probably, lies its greatest field of usefulness. The best preparation for these minor injuries is an aqueous solution, at least 2 per cent, but preferably 3 or even 5 per cent. It should not be applied to suppurating wounds.

OBSITY

To the Editor:—Kindly advise me what I can do to reduce the weight of one of my patients. The patient is a single woman aged 36, a high school teacher; since having had scarlet fever at 15 years of age she has steadily gained in weight until she now weighs 230 pounds (104 Kg.), having gained 30 pounds (13.6 Kg.) since the first of this year. She is 5 feet 6 inches tall (168 cm.) and has not had a sickness since the scarlet fever, other than a slight cold now and then. Her menstrual history is negative. The blood Wassermann reaction is negative. She has been most cooperative in the matter of diet and I have had her on 1,000 calories and even down to 800 calories for weeks at a time; still she would gain and often become faint so it would be hard for her to do her work. I have given her one-half grain (0.03 Gm.) of thyroid twice daily combined with one-fourth grain (0.016 Gm.) of solution of posterior pituitary and perhaps she would take off a few pounds for a week or so, then remain the same for a time and then gain again slowly. Her blood pressure is usually 118 systolic, 80 diastolic, and the kidneys are normal.

ANSWER.—In order not to lose weight on an 800-1,000 calory intake, this patient would necessarily have a considerable depression of the metabolic rate. Since, from the description, there is no evidence of a decreased caloric expenditure, one is forced to the conclusion that the patient (unwittingly or deliberately) is deceiving herself and the inquirer with regard to the amount of food which she consumes. Hospitalization on a measured and supervised reduction diet is recommended. While it may be economically impracticable to hospitalize the patient for a long enough period to accomplish any considerable loss in weight, the procedure will at least give a standard for judging the efficacy of further efforts at treatment.

Howard M. Cooper, M.D., Rutherford, N. J.

MERCUROCHROME

To the Editor:—What is the present status or value of mercurochrome in modern surgery, when used either in minor lacerated wounds or on the skin previous to operating? I have looked through the journals for a few years past and find no satisfactory answer. Recently I was told that in some health talks to the public the speaker told the people in the audience that mercurochrome was not at all satisfactory as an antiseptic in wounds or on the skin, or any place.

ANSWER.—Few antiseptics have been given more extensive trial than mercurochrome. Introduced at a time when the need for better chemotherapy was felt acutely and when there were rivals in the field, mercurochrome has been used during the last two decades for almost every sort of local and systemic infection.

The more than 350 articles on mercurochrome which have appeared in literature deal chiefly with (a) results of intravenous injections for various local and general infections, (b) toxicity of the drug when so administered, (c) effects of local application for infections of skin, mucous membranes and external wounds, and (d) preoperative disinfection of the skin and mucous surfaces.

Intravenous therapy, already in disrepute, has been rendered obsolete by the introduction of sulfanilamide and related compounds. As for the value of mercurochrome in the local treatment of intractable infections such as eczema of the ears, pruritus, chronic cervicitis and ringworm, no final answer can be given at present. But since the drug has not been generally adopted for the treatment of such conditions, one may assume that it has not proved entirely satisfactory.

The merits of mercurochrome in preoperative disinfection of the skin and the mucous membranes have been the subject of

WOLFF-JUNGHAN'S TEST FOR PROTEIN DIGESTION

To the Editor:—Please inform me of the status and efficiency of Wolff-Junghan's test for protein digestion of the stomach. Is it useful in diagnosing carcinoma?

ANSWER.—This test is not in common use. It has been reported, however, as reliable for the estimation of soluble protein present in gastric contents. Its usage is based on the assumption that a gastric carcinoma secretes a peptic-splitting ferment that converts insoluble protein into soluble protein. Retained foods, saliva and bronchial secretions, as well as the presence of free hydrochloric acid, will give erroneous positive reactions. It may be used as a confirmatory test for gastric carcinoma if all these conditions are considered. Finally, the diagnosis of carcinoma is usually so evident at the time at which this test is positive that one does not have to resort to it for diagnosis.

Bruce N. Wolff, M.D., Gettysburg, Pa.

PREMATURE CONTRACTIONS

To the Editor:—Can a patient have premature contractions of the heart over a period of years and then fully recover? What is the likelihood of such disappearance and the probability of recurrence?

ANSWER.—It is perfectly possible for a person to have premature contractions for periods ranging from a few minutes up to many years without harm and with their subsequent complete disappearance. Recurrence may or may not take place, although such recurrence is common particularly if the premature beats have been numerous and long continued. More common, however, than the complete disappearance of premature beats themselves is the disappearance of the symptoms from them, particular the sense of palpitation. About half the persons who show premature beats on physical examination are unaware of their presence. Many individuals feel them at the beginning of their occurrence, for example the first few hours, days or weeks, and then, although the premature beats may continue, they may no longer be felt. Rare individuals are much troubled subjectively by their occurrence and often there is a cardiac neurosis involved.

H. T. Cuming, M.D., Pace, Miss.

CALCIUM AND TUBERCULOSIS

To the Editor:—Is not calcium administered in the treatment of tuberculosis for its anti-inflammatory effect, especially its check on exudation? Is it possible that calcium exercises a therapeutic anti-inflammatory effect during the first hours after administration and can this effect be prolonged by repeated taking (as practiced by many physicians)? Is literature available?

ANSWER.—The anti-inflammatory effect of calcium is uncertain and depends on conditions that are not fully understood. When administered intravenously, calcium chloride decreases the elimination of saline fluids by the intestine. It has been used considerably in intestinal tuberculosis, in some cases of which it decreases the diarrhea. Calcium phosphate and carbonate are often administered by mouth in cases of diarrhea, in which it is believed to serve as an antacid and to have a protective effect. The cathartic ions have been found to be antagonistic to calcium when saline cathartics are administered. It has also been found that calcium chloride relaxes longitudinal muscle and stimulates circular muscle of the intestine.

It is believed that calcium prevents pleural effusion, which may occur with lethal doses of thiosinamine and diphtheria toxin, and also the conjunctival inflammatory edema produced by oil of mustard. However, even this effect has been denied by some

M.D., New York

workers. Any effect which it has on peritoneal and pleural fluids is probably due to a decrease in the permeability of all the cells. In clinical serous effusions, calcium has not been found of value. This may be due to the fact that it decreases absorption more than the formation of fluid because of the decreased permeability of cells. It has also been found that calcium has a tendency to increase pulmonary and peritoneal transudation. Therefore the evidence concerning the value of calcium in the control of inflammations and exudations is not convincing. Apparently there has been no well controlled study in a sufficiently large number of cases to justify the belief that calcium is of any particular value in the treatment of the tuberculous patient who is on a normal diet, although in intestinal tuberculosis it may serve as a palliative measure.

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COMPLETE AND PARTIAL EMPTYING OF BLADDER BY CATHETERIZATION

To the Editor:—A primipara aged 27 had fifteen hours of normal labor. Her blood pressure was perfectly normal, her kidneys did not show any change, there was no shock or hemorrhage, and she was delivered by a low forceps delivery. Twenty-four hours later the bladder became distended but the patient did not complain of discomfort, and the night nurse obtained 500 cc. of normal urine by catheter. The notes on the chart said that about half of the urine was removed. The next morning the physician commented on the chart that it was always better to remove all the urine in an obstetric patient with an acute retention. The surgical chief of the hospital objected strenuously to emptying the bladder completely and informed the nurses that it was not without danger. For my own curiosity I should like to know whether in acute retention in a normal healthy patient twenty-four hours following delivery it would be proper to withdraw the full amount to avoid a second catheterization. If you would be kind enough to decide this friendly debatable procedure, I would appreciate it.

G. C. Bates, M.D., Independence, Kan.

ANSWER.—There is no danger in the complete emptying of the bladder by means of catheterization in the puerperium. This is the usual procedure in most institutions. When the bladder has become overdistended by an acute retention of urine, its ability to empty completely should be demonstrated. Usually the patient is catheterized after voiding once or twice daily until the residual urine is less than 30 or 40 cc. The presence of a considerable residual urine in the bladder increases the hazard of urinary tract infections.

There may be some objection to the rapid emptying of the bladder of an elderly individual in whom there has been some urinary retention over a long period.

MILK FOR CHILDREN WITH FEVER

To the Editor:—Why do some physicians object to children taking milk when they have a slight elevation of temperature from a cold?

M.D., Pennsylvania.

ANSWER.—Certain physicians believe that, in acute febrile diseases or in colds with a slight elevation of temperature, the digestive functions may be impaired to some extent and that fat in the diet must be reduced and protein also held at a minimum. For this reason they may object to children taking milk during febrile diseases.

There is no scientific evidence to indicate that, during a cold with a slight elevation of temperature, such impairment of digestion occurs. Hence the rationale of limiting milk at these times is questionable.

DEAFNESS AND BLOCKING OF EUSTACHIAN TUBE

To the Editor:—A patient has recently brought to my attention an article written by Drs. T. Carroll Davis and John C. Rommell, of Philadelphia, in which they advise the use of prostigmine in cases of acute deafness associated with the blocking of the eustachian tube accompanied by ringing in the ears (known as tinnitus aurium). Would you please let me know what work has been done on this and if there is any physiologic basis for its use.

M.D., New York.

ANSWER.—Up to now there has been no confirmation of the results obtained by Davis and Rommell with prostigmine in acute deafness associated with blocking of the eustachian tube. This condition, however, is essentially a self-limited one which tends to clear itself up without any treatment and, if it does not, it usually responds readily to a few inflations. There is therefore some question whether or not the results reported were due to prostigmine or were due to the natural course of the disease.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, May 25, page 2143.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, June 17-19. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: December 1940. In view of the small number of applications received before March 1, there will be no examination at New York, June 10-14. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: Written, October 21. Applications must be on file by September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: General oral and pathologic examinations (Part II), (Group B) will be conducted in Atlantic City, N. J., June 7-10. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: Oral, New York, June 8-10; Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Oral and written, New Orleans, January 1941. Final date for filing application is November 15. Sec., Dr. Fremont A. Cl.

AMERICAN BOARD OF k, June 3-5. Sec.

Dr. W. P. Wherry, 1500 e 10-11. Sec., Dr.

F. W. Hartman, Henry Ford Hospital, Detroit.

AMERICAN BOARD OF PEDIATRICS: Memphis, Tenn., Nov. 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF RADIOLOGY: New York, June 7-10. Sec., Dr. Byrd R. Kirklin, 102-110 Second Ave., Rochester, Minn.

Arizona January Examination

Dr. J. H. Patterson, secretary, Arizona State Board of Medical Examiners, reports the written examination held at Phoenix, Jan. 2-3, 1940. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Five candidates were examined, all of whom passed. Three physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Number Passed
Louisiana State University Medical Center	(1938)		1
University of Minnesota Medical School	(1939, 2)		1
Temple University School of Medicine	(1938)		1
University of Texas School of Medicine	(1937)		1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Michigan Medical School	(1929)		Michigan
University of Nebraska College of Medicine	(1935)		Nebraska
Temple University School of Medicine	(1935)		Minnesota

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Southern California School of Medicine	(1938)		N. B. M. Ex.

Minnesota January Examination

Dr. Julian F. Du Bois, secretary, Minnesota State Board of Medical Examiners, reports the oral and written examination held at Minneapolis, Jan. 16-18, 1940. The examination covered twelve subjects and included sixty questions. An average of 75 per cent was required to pass. Fifty-five candidates were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Stanford University School of Medicine	(1936) 90.2,	(1938)	89.4
Yale University School of Medicine	(1936)		87.1
Northwestern University Medical School	(1937) 88.4,		89.6
(1938) 87.5, 89.5, (1939) 82.6, 87.4			
The School of Medicine of the Division of the Biological Sciences	(1939)		80.2
University of Illinois College of Medicine	(1938)		89.6
(1939) 88, 88.6			
Indiana University School of Medicine	(1937) 89.1, (1938)		87.3
State University of Iowa College of Medicine	(1938)		87
University of Kansas School of Medicine	(1936)		88.4
Tulane University of Louisiana School of Medicine	(1937)		85.6
Johns Hopkins University School of Medicine	(1938)		87.6
Harvard Medical School	(1936) 87.3, (1937) 91.2, (1938)		86.1
University of Michigan Medical School	(1933) 85.1, 86.2,		83.2
University of Minnesota Medical School	(1938)		
88.3, 89.3, (1939) 83.3,* 83.5,* 85.1,* 85.2,* 85.6,*			
86.1, 87.1, 87.5,* 88.3,* 88.5,* 89.1,* 90.1,* 90.2,*			
90.5,* 90.6*			

Book Notices

University of Buffalo School of Medicine.....	(1934)	88.4
Duke University School of Medicine.....	(1938)	89
Western Reserve University School of Medicine.....	(1937)	93
Hahnemann Medical College and Hospital of Philadelphia.....	(1939)	84
University of Texas School of Medicine.....	(1936)	89.5, 89.5,
Marquette University School of Medicine.....	(1939)	84.3
University of Wisconsin Medical School.....	(1934)	87.2
University of Manitoba Faculty of Medicine.....	(1937)	91.2
McGill University Faculty of Medicine.....	(1932)	88.4,

School	LICENSED BY ENDORSEMENT	Year	Reciprocity
University of Minnesota Medical School.....	Grad.	(1939)	N. B. M. Ex.
* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.			

Ohio Reciprocity and Endorsement Report

Dr. H. M. Platter, secretary, Ohio State Medical Board, reports thirty-one physicians licensed by reciprocity and one physician licensed by endorsement on January 9. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year	Reciprocity
University of Colorado School of Medicine.....	Grad.	(1935)	Colorado
George Washington University School of Medicine.....	(1933)	New Jersey	
Northwestern University School of Medicine.....	(1937)	Tennessee	
University of Illinois College of Medicine.....	(1932)	Colorado	
Indiana University School of Medicine.....	(1931)	Illinois	
State University of Iowa College of Medicine.....	(1935)	Indiana	
Tulane University School of Medicine.....	(1933)	Iowa	
University of Louisville School of Medicine.....	(1935)	Kentucky	
University of Maryland School of Medicine.....	(1933)	Alabama	
University of Physicians and Surgeons.....	(1935)	Maryland	
Boston University School of Medicine.....	(1933)	Connecticut	
Tufts College Medical School.....	(1915)	New York	
University of Michigan Medical School.....	(1938, 2)	Michigan	
University of Minnesota Medical School.....	(1933)	Minnesota	
St. Louis University School of Medicine.....	(1936), (1938, 3)	Missouri	
Washington University School of Medicine.....	(1931), (1935),		
Creighton University School of Medicine.....	(1938)	Kansas	
University of Nebraska College of Medicine.....	(1924)	Nebraska	
Columbia University College of Physicians and Surgeons.....	(1933)	New York	
Long Island College of Medicine.....	(1933)	New York	
University of Buffalo School of Medicine.....	(1934)	New York	
University of Pennsylvania School of Medicine.....	(1936)	Penn.	
Medical College of Virginia.....	(1931)	Virginia	
McGill University Faculty of Medicine.....	(1937)	New Jersey	

LISCENSED BY ENDORSEMENT

School	Year	Reciprocity
Yale University School of Medicine.....	Grad.	(1937) N. B. M. Ex.

Wisconsin January Examination

Dr. E. C. Murphy, secretary, Wisconsin State Board of Medical Examiners, reports the oral and written examination held at Madison, Jan. 9-11, 1940. The examination covered twenty subjects and included 100 questions. Twenty candidates were examined, all of whom passed. Thirteen physicians were licensed by reciprocity and one physician was licensed by endorsement. The following schools were represented:

PASSED

School	Year	Per Cent
College of Medical Evangelists.....	Grad.	(1939) 82, (1938)
Northwestern University Medical School.....	(1939)	87
Rush Medical College.....	(1938)	88
University of Illinois College of Medicine.....	(1937)	90
Harvard Medical School.....	(1937)	88
University of Minnesota School of Medicine.....	(1939)	89
University of Oklahoma Medical School.....	(1938)	84
University of Oregon Medical School.....	(1938)	86
Marquette University School of Medicine.....	(1939)	86, 87
University of Wisconsin Medical School.....	(1937)	88, 88,
Pennsylvania Medical School, Shanghai.....	(1939)	82
Osteopath.....		85

LISCENSED BY RECIPROCITY

School	Year	Reciprocity
Northwestern University Medical School.....	Grad.	(1935)
University of Illinois College of Medicine.....	(1934), (1938, 2)	Kansas,
Indiana University School of Medicine.....	(1935)	Illinois
Tulane University School of Medicine.....	(1935)	Indiana
Johns Hopkins University School of Medicine.....	(1934)	Illinois
University of Minnesota Medical School.....	(1930), (1935)	Maryland
St. Louis University School of Medicine.....	(1936)	Minnesota
Ohio State University School of Medicine.....	(1917)	Missouri
University of Cincinnati College of Medicine.....	(1935)	Ohio

LISCENSED BY ENDORSEMENT

School	Year	Reciprocity
Hohenhavs Universitet Lægevidenskabelige Fakultet.....	Grad.	(1924) U.S. P.H.S.
* Examined in surgery.		

Dermatologic Allergy: An Introduction in the Form of a Series of Lectures. By Marlon B. Sulzberger, M.D., Assistant Clinical Professor of Dermatology and Syphilology, Skin and Cancer Unit of the New York Post Graduate Medical School and Hospital of Columbia University, New York. Cloth. Price, \$8.50. Pp. 540, with 52 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, Publisher, 1940.

The term "introduction" in the title of this book is unnecessarily modest. The reviewer knows of no work on this subject which approaches it in thoroughness, breadth of knowledge, clarity, scientific approach, and painstaking care to detail. Only one acquainted with the field of allergy and immunology, and especially its applications in dermatology, can realize what an emergence from an almost insoluble maze has been accomplished by Sulzberger in this book.

The presentation in lecture form is fortunate, as it allows the author the necessary freedom to present this difficult subject in a lucid, free manner, unhampered by the usual more formal methods. The language is clear. The highest standards for scientific discussions are met by this book. The marginal notes aid greatly in summarizing the material. The footnotes are excellent and in them the author cites his own opinions in fact, throughout, the author never fails to state his own opinions on controversial matters, always, in addition, carefully presenting the views of others. Moreover, since he has been responsible for many of the important contributions in every branch of this subject, the book is replete with discussions of his own experiments, observations and conclusions, and their applications to clinical medicine. The bibliographies at the end of the chapters give the important articles, which in themselves summarize all the work. He also gives first publications on the subject (recognition so frequently neglected by many authors). Sulzberger's broad concept of allergy, together with its application in clinical medicine, is presented in detail, and its use in the diagnosis and treatment of dermatologic, infectious and medical conditions in general is clarified. All terms applicable to immunology and allergy are carefully defined. In addition the appended glossary of definitions is complete.

The first lecture is on definitions and classifications. The beginner will find this an excellent introduction to the subject of allergy. In lecture II, on some fundamental phenomena of allergy and their significance as common factors in certain diseases and reactions due either to nonliving allergens or to the agents of infectious diseases, the author discusses the fundamental principles of immunology and allergy in a lucid and instructive manner. Lecture IV, on the investigation of individual cases presumed to be based on allergy, presents all the necessary diagnostic criteria with emphasis on the necessity for intelligent criticism. The lectures on the necessity for the research worker and practical physician. The lectures on allergy in infectious diseases, tuberculin and tuberculodermis, especially well presented and complete. Here the author applies his broad concept of allergy to conditions not generally considered "allergic" in the narrow sense of the term. Lecture XIII, on allergy to drugs and on drug eruptions, presents one of the most important branches of this field. The experienced allergist and dermatologist knows how frequently drugs (mainly simple chemical substances) are the cause of remarkably varied and manifold complaints. This chapter offers the present knowledge on this subject in such a well organized manner that it should be of value not only to the specialist but to the practicing physician as well. In the concluding chapter, on the future of allergy, the author gives free play to his views and speculations for future investigative work. He discusses organ-specific antibodies, synergism, epithelial sensitization and prophylaxis. Any one who asks Is allergy here to stay? should read this lecture for the answer. In appendix I, Sulzberger has translated Piquet's original article on allergy, which was published in 1906. Appendix II presents the most complete list ever published of substances used for patch tests and the concentrations employed. It is one of the most important of the practical contributions of this book. Appendix III presents the criteria for

determining the industrial character of a dermatitis. It is valuable to any one dealing with industrial medicine. Appendix IV, on the management of eczematous dermatitis and on the management of urticarial dermatoses, places in the hands of the physician the best accepted dermatologic local and general procedures used in these cases.

This book demonstrates that Sulzberger is a teacher as well as a tireless investigator. In addition to its great factual content, the style in which the book is written makes it enjoyable reading.

The Inter-Relationship of Mind and Body. The Proceedings of the Association, New York, December 27th and 28th, 1938. Editorial Board: Foster Kennedy, Angus M. Frantz and Clarence C. Hare. Association for Research in Nervous and Mental Disease, Vol. XIX of a Series of Research Publications. Cloth. Price, \$6. Pp. 381, with 28 illustrations. Baltimore: Williams & Wilkins Company, 1939.

One is first struck by the significant fact that this volume is only about half the size of recent volumes in this series and lastly by the even more significant fact that it could have been materially improved by a much greater reduction. This review is not concerned with the manner in which the various authors have presented their material. On the whole they have done as well as any similar group might have been expected to do. True they have attempted, unconsciously perhaps, to screen an enormous void of ignorance with a much concentrated though thick curtain of words.

There is only one serious omission in the volume. There is nothing more than a passing reference (e. g. pp. 261, 307, 312) to the animal experimental studies of the influence of frustration and emotional stress on the activities of the remainder of the body. With the exception of this omission, the wordy volume can be accepted as setting forth fairly clearly the present state of our ignorance of the working of the mind. It is to be hoped that in years to come the volume will be frequently cited as evidence of the ignorance in this field in the first half of the twentieth century, just as the writings of Goltz and Brown-Séquard are now cited as evidence of the misunderstanding prevalent regarding cerebral localization in the latter half of the nineteenth century.

At no point is the purpose of the symposium which this volume represents made clear. From the material presented it is assumed that the aim was to present the existing knowledge concerning mental (and emotional) activity, the mechanism responsible for it and the effect of such activity on the rest of the organism. One can conclude from the book only that such knowledge is almost wholly lacking. That some of those who took part in the discussion were cognizant of this is evident (see pp. 1, 97) but one might have wished for a more frank and less verbose admission of that fact. Nor is it surprising that further progress has not been made when one surveys the unscientific manner in which information has been sought. Surely no worthwhile results are to be expected so long as we persist in the age old post hoc, ergo propter hoc type of reasoning. Yet, for example (and there are many others in this volume), there are set forth in chapters XVII and XIX, apparently for serious consideration, case histories in which a series of chronologically arranged events, selected according to the particular bias of the author, is presented as the cause of a particular neurosis and associated "somatic" disease. These discussions are completely lacking in appreciation for the need of accurate scientific controls. Yet such controls were available but were completely ignored. In case 1, pages 273-278, there were eight other siblings all of whom were born of the same "inconsiderate, domineering, self-centered, wilful" mother, who suffered from migraine, and the same "neat and clean" father, who suffered from an obsession, several of whom must have suffered from whooping cough as did the patient, must have had to take medicine administered by their mother, had discharging ears, been alive when siblings were born to their mother, and had dietary likes and dislikes, and so on ad nauseum. What of them? Did they, recipients of the same heredity and born into the same environment, also become sexually promiscuous, develop syphilis, a neurosis and asthma and die of periarthritis nodosa, cerebral hemorrhage and pneumonia? If not, why not? Surely such inadequate data cannot be accepted as establishing the primary importance of "an affection of the respiratory apparatus in early childhood," "emotional upsets" in

childhood and the "great dependence on, combined with hatred of, a domineering and aggressive mother" as primary causative factors in the development of asthma.

No intelligent physician would deny the primary etiologic importance of emotional and mental factors in some forms of disease. But if those factors are to be accurately assessed we must discard such superficial observations as these for a more searching study. We would agree with the statement of the psychoanalyst (p. 306) that "the spoken communications of the patient" are "no less valid therefore as the subject of scientific study than are visual data," but we would disagree with the psychoanalyst's apparent acceptance of these "spoken communications" as valid representations of the truth.

It is time that the entire medical and psychologic professions recognized an almost complete ignorance of the anatomy and physiology of the mind. It is not sufficient that we profess "that mental and emotional operations are more closely related to the activity of the brain than to that of any other organ" (p. 81), but essential that we either prove or disprove this statement by repeated and repeatable investigations carried out with strict observation of all relevant details and under exacting scientific controls. It is essential that we recognize or disprove that mental and emotional activities are not something occult and mysterious but are really nothing more or less than the manifestations of cerebral activity; that they are as surely cerebral physiology as is the study of the relation of the brain to the activity of skeletal muscle. If we are to comprehend the complex anatomic and physiologic facts of mental activity, complete advantage must be taken of animal experimentation with full recognition of its limitations, and serious scientific effort must be directed toward the study of these activities in the animal with which we are all primarily concerned, man. The clinical investigator must "experimentally set up stresses and strains upon the organism" (p. 305) and must take far more intelligent advantage of those situations which nature provides for him than he has in the past.

This book is one of the most distressing expressions of the ignorance of all of us that has come from the medical presses in many years. It can be recommended as a reasonably thorough documentation of that ignorance.

Leistungsfähigkeit und Arbeitseinsatz des Zuckerkranken: Eine Stellungnahme zum sozialen und arbeitswirtschaftlichen Problem des Diabetes mellitus auf Grund 8-jähriger Erfahrungen im "Ersten Deutschen Diabetikerheim" Garz auf Rügen. Von Dr. H. J. Banse und Dr. R. Spiekermann. Mit einem Geleitwort von Prof. Dr. G. Katsch. Boards. Preis, 6.30 marks. Pp. 95, with 8 illustrations. Leipzig: Georg Thieme, 1938.

A most interesting monograph on work capability of persons with diabetes has appeared appropriately enough from Germany. This paper, with an introduction by Professor Katsch, represents observations on the economic aspect of diabetes mellitus founded on eight years of experience in the First German Diabetic Sanatorium at Garz, on the island of Rügen.

The First German Diabetic Sanatorium at Garz has taken for its aim the training and schooling of the diabetic patient in order to return him to a normal productive life, i. e. to preserve his ability to work in spite of diabetes. Professor Katsch emphasizes the extreme importance of this work in Germany, quoting the words of the Führer that German working power is Germany's gold and adding that the "present shortage of workers here in Germany makes the productive diabetic treatment so important that it takes on the nature of a national duty for doctors to embrace it."

This masterly report stresses the favorable consequences to Germany's whole social economy of rehabilitation therapy which will permit thousands of sufferers to resume gainful occupations. It emphasizes the necessity for the supervision and training afforded by sanatorium treatment as at Garz whereby the diabetic patient can be trained to take full control of his regimen. Where such sanatorium treatment is unavailable, permanent help can be provided by the use of visiting nurses. Other sanatoriums have been built in Denmark and in Hungary modeled after that in Garz; and Italy is utilizing a system of visiting nurses.

After detailing the special equipment of which the sanatorium makes use, the report discusses the question of the insulin and diet requirement of the patient as a future worker in industry. The authors prefer the slow acting insulin. This is of special significance for patients who have to work, as the injections are

less frequent. They say "Sugar is used up mostly in the muscle cells. The diet treatment of the working diabetic must of necessity aim at the creation and preservation of sufficient oxidation material, and has, therefore, to look to a sufficient intake and use of sugar." Again, "Soon it was learned [at Garz] that work is therapy in many cases of diabetes." In other words, Germany, making a virtue of a necessity, is facing the problem of the rehabilitation of diabetic patients in a challenging fashion worthy of attention. This monograph is of sufficient importance to merit translation into English for those medical men who cannot profit from it in the original language.

Estudios fonocardiográficos y hemodinámicos en embarazadas y fetos en los últimos tiempos del embarazo normal. Por Julio C. Perelán. Tesis de doctorado en medicina. Trabajo realizado en el Instituto de fisiología de la Facultad de ciencias médicas de Córdoba (Argentina). Universidad nacional de Buenos Aires, Facultad de ciencias médicas, núm. 5103. Paper. Pp. 114, with 53 illustrations. Buenos Aires: Sebastián de Amorrotu e Hijos, 1939.

This thesis for a doctor's degree is divided into three parts. The first part describes the results of phonocardiographic studies of the heart of fifty pregnant and forty-nine nonpregnant women, arriving at the conclusion that no changes in the character or frequency of heart sounds attributable to gestation can be found. The second part gives a description of records of fetal heart sounds and furnishes data as to their duration, frequency, number of vibrations which form the first and second sound, and so on. In the third part the author discusses the hemodynamics in the fetus and in other periods of life, calculated on the basis of the aforementioned studies.

As to the technic, he prefers the direct method of recording heart sounds with Wiggers-Dean capsule and optical registration to the indirect, in which the sound is transformed into oscillations of an electric current and after a suitable amplification is registered photographically. He maintains that the results of the direct method correspond better to the acoustic perception by the physician's ears because in the electrical method certain frequencies are deliberately suppressed and others unduly amplified. Although he thus enters a controversial ground, his thesis furnishes many valuable data and demonstrates the slowly but steadily growing value of phonocardiography. The book will undoubtedly meet with a favorable reception in circles interested in the recording of heart sounds.

Thomson & Miles' Manual of Surgery. By Alexander Miles, M.D., LL.D., F.R.C.S., Consulting Surgeon, Royal Infirmary, Edinburgh, and the late Sir David Wylie. Volume I: General. Volume II: Regional. Ninth edition. Cloth. Price, \$13.50 per set. Pp. 656, with 346 illustrations: 657-1371, with 644 illustrations. New York & London: Oxford University Press, 1939.

These two volumes, divided under the headings of regional and general, are concerned wholly with the clinical phases of surgery. The section on general surgery contains material on inflammation, repair, wounds and infectious. Specific diseases such as syphilis, gonorrhea and tuberculosis, and diseases of systems such as vessels, nerves and bones are covered thoroughly in the first volume. The second volume contains the specific locale of the surgical disease with the anatomy, pathology and clinical features of the parts involved. The subjects are treated with a considerable detail and thoroughness throughout. It is doubtful whether in this country it is necessary to give such detailed methods of handling syphilis as are encountered in this surgical manual. The treatment of syphilis is not essentially a surgical problem, and doses of arsenicals and courses of treatment outlined in this book have been questioned in recent years.

The two volumes are treated as one unit, and each volume possesses a common index. While the contents are encyclopedic in character, clinical signs and symptoms are especially well portrayed. Preoperative and postoperative complications are discussed with surprising comprehensiveness. Recent advances in surgery are not particularly emphasized, although the last edition is dated 1931. No mention is made of the use of vitamin K in the preparation of jaundiced patients for surgery, a valuable therapeutic measure introduced over a year prior to the date of publication. Sulfapyridine is mentioned. The technical side of the surgical procedures is not dealt with in these books, and in general treatment is not always as satisfactorily portrayed as the diagnostic portions. This manual contains a great amount of well organized information and is especially valuable in the clinical phase of the practice of surgery.

A Symposium on the Blood and Blood-Forming Organs. Cloth. Price, \$3.50. Pp. 264, with illustrations. Madison: University of Wisconsin Press, 1939.

This is a collection of papers delivered at the Institute for Consideration of the Blood and Blood-Forming Organs, held under the auspices of the University of Wisconsin Medical School Sept. 4-6, 1939. The subject matter, which consists of both reviews and new observations, was presented by hematologists from several of the medical schools of the United States and included a paper on "Some Historical Aspects of Hematology" by Professor Meulengracht of Copenhagen. Watson's article on the porphyrins is a summary of the present knowledge of the formation, excretion and significance of these substances. Rhoads' article on "Aplastic Anemia" describes the studies made at the Rockefeller Institute Hospital and emphasizes the point that there are several types of this disease. Articles on iron deficiency (Heath), nutritional anemias (Minot), erythroblastic anemias (Diamond), pernicious anemia (Meulengracht), leukemia (Forkner), the reticulo-endothelial system (Doan), infectious mononucleosis (Downey) and polycythemia (Reznikoff) form comprehensive reviews of the data which are considered pertinent at present on these subjects. Krumblhaar has an excellent evaluation of the present knowledge of Hodgkin's disease, well worth studying. Haden presents the theory of "critical volume" in explaining hemolysis. Firth has summarized the extensive work on leukemia carried on in his laboratory on mice. Osgood describes some of the newer data obtained by the method of "narrow culture." Eagle simplifies the subject of blood coagulation in a selective review of the literature. The book will be of considerable value and interest to those specializing in hematology, giving, in a compact form, material which was previously scattered in many journals and books.

A Textbook of X-Ray Diagnosis. By British Authors. Edited by S. Cochrane Shanks, M.D., M.R.C.P., F.F.R., Radiologist, The Prince of Wales's General Hospital, London, Peter Kerley, M.D., M.R.C.P., F.F.R., Physician to the X-Ray Department, Westminster Hospital, London, and E. W. Twining, M.R.C.S., M.R.C.P., F.F.R., Radiologist, Royal Infirmary, Manchester. In Three Volumes. Volume III. Cloth. Price, £3 3s. Pp. 800, with 710 illustrations. London: H. K. Lewis & Co., Ltd., 1939.

The first two volumes of this reference work have already been reviewed. The third encompasses the remaining subjects not included in the earlier volumes. These are divided into five parts: the central nervous system; the sinuses, mastoids and labyrinth; the bones, joints and soft tissues; the teeth and jaws; the eyes, and finally a section on cineradiography by Reynolds. In the latter is presented an interesting review of this subject by a well known authority. Despite the sixteen authoritative contributors to this volume there are relatively few contradictions. The section on the central nervous system is well done and exhibits considerable detail. The American reader may be astonished at the attention paid to arterio-encephalography in contrast to the rather brief discussion of ruptured intervertebral disk, but aside from this the material is well balanced. The section on the radiology of the paranasal sinuses and mastoids is splendid and includes a consideration of technic. The teeth and jaws are discussed by H. M. Worth succinctly and completely; this is an unusually valuable portion of the book. The major effort of the volume is devoted to the bones and joints, almost all lesions being touched on, but all too briefly. In a textbook of this size one should be able to find more than a passing mention even of the rarer conditions, but this is unfortunately too often not true. The discussion of fractures and dislocations does not cover the field to any degree. There is an excellent chapter on the pathology of bone disease, and the correlation of pathology with the x-ray appearances is consistently discussed. The arrangement of the material is somewhat confusing, leading to some repetition. The illustrations, all in positive, except those on the teeth and jaws, are uniformly good; but for a book of these pretensions they are too few. For example, none of the common anatomic variations are illustrated by actual roentgenograms; such an important disease as rickets has only two. The roentgenogram selected to represent Ewing's tumor is a rather poor choice. On the whole, however, the illustrations are well chosen and, considering their limited number, illustrate well the conditions discussed. The format and printing are excellent, but the binding seems quite inadequate

for so large a book. The three volumes form the most elaborate and complete reference book on roentgen diagnosis in the English language. Despite some shortcomings they represent an invaluable addition not only to the library of the roentgenologist but to every physician who uses the x-rays for diagnosis.

Mental Health. Forest Ray Moulton, Editor. Paul O. Komora, Associate Editor. Publication of the American Association for the Advancement of Science, No. 9. Cloth. Price, \$3.50. Pp. 470, with illustrations. Lancaster, Pa.: Science Press, 1939.

With Walter L. Treadway as chairman of the publication committee, the American Association for the Advancement of Science presents the fourth symposium in the field of public health. Preceding symposiums were devoted to cancer, tuberculosis and leprosy, and syphilis. The U. S. Public Health Service, National Committee for Mental Hygiene and the Mental Hospital Survey Committee collaborated in organizing the symposium. Some forty-nine papers and formal invited discussions as well as informal discussion comprise this most comprehensive survey of the field of mental health. An introductory comment on the aims and scope of the symposium, by Thomas M. Rivers, is followed by five sections, the first of which, Orientation and Methods in Psychiatric Research, presents the diverse approaches to research in psychiatry. Sources of Mental Disease, the Economic Aspects of Mental Health, Physical and Cultural Environment in Relation to the Conservation of Mental Health, Mental Health Administration, and Professional and Technical Education in Relation to Mental Health are the succeeding general sections. The symposium concludes with a public address by Dr. C. McFie Campbell on Human Needs and Social Resources. This symposium is remarkably well organized and unusually complete. The student of problems of mental health is confronted with the unpleasant fact that always he is dealing with problems of multiple determination. He is well aware that the limitations of his own science are such as to enable him to envisage quite incompletely only an aspect of the behaving personality. The present symposium is invaluable in aiding the student in any given field of study to orient himself as to his relationship to the general problem of human conduct. Doubtless, specialists in various given fields would feel that undue emphasis is given here, too little there; but there is no question that the symposium presents on the whole a well balanced survey. The difficulties scientists have in understanding one another's language and the degree to which the scientist may be distracted from his interest in man as man is perhaps best brought out by Dr. Edward Sapir's somewhat caustic discussion of Psychiatric and Cultural Pitfalls in the Business of Getting a Living. The papers maintain a high standard of excellence. The printed symposium should be at hand for every psychiatrist and for all serious students of human conduct and personal adjustment.

A Topographic Atlas for X-Ray Therapy. By Ira I. Kaplan, B.S., M.D., Director, Radlaton Therapy Department, Bellevue Hospital, New York City, and Sidney Rubinfeld, B.S., M.D., Associate Visiting Radiation Therapist, Bellevue Hospital. Cloth. Price, \$4. Pp. 120, with 55 plates. Chicago: Year Book Publishers, Inc., 1939.

For successful radiation therapy, accurate representation of the diseased organ on the skin is a necessity. Carefully planned division and limitation of the fields are of the same importance as the thorough calculation of the dosage and of the amount of roentgens to be applied. The present atlas brings excellent illustrations of topographic anatomy as needed for proper settings in radiation therapy. Each drawing illustrates the organs to be treated and gives the relationship to their topographic landmarks as seen in projection on the skin. The exact placement of the cone completes the impressive illustration. Other photographs are added to show the lymphatic drainage of various organs most commonly affected in cancer which should be included in radiation therapy. In cases in which various methods of settings are used, as for instance in the treatment of carcinoma of the breast, the author illustrates various technics. The experienced authors did not fail to see that the position of the organs may vary in different individuals. Therefore they suggest that deviation from the standard anatomy be based on diagnostic x-ray examinations. Their work is valuable and helpful for safer and accurate radiation therapy.

Diabetes Mellitus and the Jewish Race. By Erast Lyon, M.D. Paper. Pp. 32. Jerusalem: Ludwig Mayer, 1940.

This manuscript, which is more a compilation of the writings of others than the author's own work, is valuable in that it presents together the modern data on diabetes in Jews. According to Ernst Lyon, the Jewish race is not a pure race but has had many, many mixtures throughout all the years and therefore it is hardly correct to attribute the increase in diabetes in Jews to a racial origin. He emphasizes the necessity for the standardization of statistics because the Jewish population is older, owing to a smaller number of children. The possibilities of obesity and inbreeding must be considered. Furthermore, the social status and occupations are factors. The author is undoubtedly correct in stating that figures as to the incidence of diabetes in Jews must be interpreted according to their source. He says that those obtained from the private practice of specialists who are most frequently consulted by Jews with diabetes are of no (?) importance because the true number of the diabetic depends on the number and age of the Jews in the country. Lyon emphasizes the recent German statistics in which the mortality in Jews as compared with non-Jews in Germany was lower than had generally been considered, and he furthermore points out that Kahn estimated the Jews in Germany in 1936 to be 393,000, of whom 87,000 were over 60 years of age and half under 44 years of age, in contrast to the Jews in Palestine the same year, where the total was 395,000, of whom 17,000 were over 60 years and half of the total were under 20 years. Lyon also discussed the percentage of Jews among diabetic children. The reviewer knows of one group of 1,211 consecutive children in which the Jewish percentage is 6.6, whereas the percentage of Jews in a thousand cases of true diabetes investigated at the same time was 10.4.

Psychobiology and Psychiatry: A Textbook of Normal and Abnormal Human Behavior. By Wendell Muncie, M.D., Associate Professor of Psychiatry, Johns Hopkins University, Baltimore. With a foreword by Adolf Meyer, M.D., LL.D., Sc.D., Henry Phipps Professor of Psychiatry, Johns Hopkins University. Cloth. Price, \$8. Pp. 739, with 68 illustrations. St. Louis: C. V. Mosby Company, 1939.

Out of his extended experience in the Henry Phipps Psychiatric Clinic, the author has developed a new work on psychobiology and psychiatry which introduces several new features. The work follows essentially the methods of teaching used at the Johns Hopkins Medical School. After a historical introduction, several chapters are devoted to the student's personality study. Thus the student begins the course by making a personal study of himself which he endeavors to make as objective as possible. Thereafter comes a consideration of abnormal behavior according to the usual classifications, with a third part of the book devoted to treatment and the fourth part to a historical bibliography. The work is especially attractive because of the excellent case reports, which graphically demonstrate to the student the nature of psychologic disturbances. Available also are diagrammatic analyses in the form of life charts of many of the patients. Modern psychiatry is in a developmental stage in which every author apparently requires special terminology for the elucidation of his classifications of mental disease. The historical bibliographic analysis, which occupies almost 200 pages of the book, seems to have been developed on the basis of a classification according to national contributions, with a special section for psychoanalytic contributions. This seems to be an extraordinarily wasteful method of presentation, the usefulness of which over a well written literary account is not apparent.

A Synopsis of Surgical Anatomy. By Alexander Lee McGregor, M.Ch., F.R.C.S., Assistant Surgeon, Johannesburg General Hospital, Johannesburg, South Africa. With a foreword by Sir Harold J. Sillies, F.R.C.S. Fourth edition. Cloth. Price, \$6. Pp. 664, with 618 illustrations. Baltimore: William Wood & Company, 1939.

This small textbook of surgery is amazingly informative. Essentially it is divided into two parts, anatomy of the normal and anatomy of the abnormal. There are numerous simple illustrations which are schematic and readily grasped. It contains several tabular outlines of anatomic relationships and measurements. Bibliographic references are presented as footnotes. This is a genuinely refreshing book, highly commendable for ready anatomic review.

The Fundamentals of Internal Medicine. By Wallace Mason Yater, A.B., M.D., M.S., Professor of Medicine and Director of the Department of Medicine, Georgetown University School of Medicine, Washington, D. C. Second edition. Cloth. Price, \$9. Pp. 1,021, with 255 illustrations. New York & London: D. Appleton-Century Company, Inc., 1940.

The first edition of this book was reviewed in *THE JOURNAL*, Jan. 7, 1939, page 81. The author states in a prefatory note that this revision, made fifteen months after the first edition, includes numerous alterations and additions without material increase in the size. One of the most obvious additions concerns brief discussions of sulfanilamide and sulfapyridine therapy; it is obscure why the author has used the English "sulphanilamide" and "sulphapyridine" instead of the commonly accepted American spelling. The attempt to obtain brevity with sufficient completeness encounters great difficulties. In the light of existing knowledge today a chapter on gastritis, no matter how brief, should include at least some references to the use of the flexible gastroscope. In the reviewer's opinion, the advantages of including chapters on diseases of the skin, diseases of the ear and diseases of the eye in a textbook of internal medicine are insufficient to warrant the space, which might be better applied to expanding some of the discussions on subjects more commonly included in this field.

Illustrations of Regional Anatomy. By E. B. Jamieson, M.D., Senior Demonstrator and Lecturer, Anatomy Department, University, Edinburgh. Section VI: Upper Limb. Section VII: Lower Limb. Second edition. Loose-leaf. Price, \$2.50; \$3.50. 42 plates; 52 plates. Baltimore: William Wood & Company, 1939.

This completes the entire edition of these pleasing anatomic illustrations. The previously issued five sections have already been reviewed in *THE JOURNAL*. The limbs lend themselves readily to the diagrammatic portrayal used in the drawings, and the lavish use of color helps considerably in keeping the intricate structures separate. As with the remaining sections, these additional portions can be recommended without reservation to the student of gross anatomy. The axilla is especially well portrayed. The knee joint and its ligaments could be more clearly described. Again it should be pointed out that for the small format employed too many details are occasionally delineated; this does not detract considerably from these splendid manuals.

Medicolegal & Industrial Toxicology, Criminal Investigation, Occupational Diseases. By Henry J. Ellmann, Ph.D., Director of Physicians' Laboratory Service of Toledo, Ohio. Cloth. Price, \$3. Pp. 324. Philadelphia: Blakiston Company, 1940.

This book is disappointing in its content. The author has endeavored to cover too wide a field in too brief a space, with the result that much of the material is so sketchy as to have little value. Some of the inaccuracies are not free from possible harmful results. For instance (p. 222) "Carbon monoxide concentration in the air must exceed 15 parts 10,000 (1,500 p. p. m.) to produce possible serious results." This is a misleading and dangerous statement. The tentative standard of the American Standards Association for permissible range of concentrations is 100 parts per million for exposures not exceeding eight hours daily and 400 for exposures not exceeding a total of one hour daily. "An exposure of 700 to 1,000 p. p. m. will in three to four hours produce severe headache, muscular incoordination, weakness, vomiting and collapse. This reaction is adequately described as 'severe'" (quoted from the American Standards Association proposed standards, based on experiences of various studies and experiments). The chapters on industrial poisoning and occupational diseases are so abbreviated as to be of little use. The book cannot be recommended either for students or for workers in the field it aims to cover.

A Guide to Ophthalmic Operations. By J. Bruce Hamilton, M.B., Ch.M., D.O. Foreword by Sir James William Barrett, K.B.E., C.B., M.D. Cloth. Price, 10s. 6d. Pp. 201. London: H. K. Lewis & Co., Ltd., 1940.

This small volume is a radical departure from most surgical guides in that the procedures of the operation itself are entirely omitted but the preparation of the patient, instruments, drugs and dressings and the postoperative care is outlined for a great number of ocular operations. The author's preliminary training was gained in residencies at Melbourne and London, and his private practice has been conducted in Hobart, Australia; thus the outline is more readily usable to those with a similar background. Perhaps the portion of greatest interest, and this more especially to the embryo ophthalmologist, is that dealing

with the method of preparation of dressings, care and storage of sutures and their preparation, and the care and sterilization of instruments, droppers, gloves and radium needles, in all of which the student has little or no teaching. The drugs, their preparation and sterilization, being taken from the British Pharmacopeia, necessarily have a limited application for the American ophthalmologist. Instruments are indicated as illustrated in British catalogues for the most part. Diet and nursing care are stressed. The volume is of great practical value for the ophthalmic surgical nurse, the student and the surgical assistant as a general outline in the preparation for the many ocular surgical procedures.

Love Problems of Adolescence. By Oliver M. Butterfield, Ph.D. Cloth. Price, \$2.25. Pp. 212. New York: Emerson Books, Inc., 1939.

This book is interesting and a valuable addition to the already large volume of literature on this subject. It does not answer many of the questions which are raised, but this is doubtless a good thing, because these are questions that cannot be answered categorically and *en masse* but must be considered individually. The proper value of the book lies in the fact that it shows what these young people are thinking about and what questions they are asking one another and asking older persons who might be expected to answer them. It is a book that should be studied by parents, teachers and all young people. Physicians, ministers and social workers also should find it useful.

Surgical Diagnosis. By Stephen Power, M.S., F.R.C.S., Assistant Surgeon, London Homeopathic Hospital, London. Cloth. Price, \$4.50. Pp. 228, with 66 illustrations. Baltimore: William Wood & Company, 1939.

It is a difficult task to write a book on surgical diagnosis in little more than 200 pages, yet this the author has accomplished. Twenty-two short chapters cover the entire field of surgery not exhaustively, it is true, yet sufficiently to be of much help in making a direct and differential diagnosis of almost any average surgical condition. The material is accurate and simply presented. The book is attractively printed and has a number of line drawings and illustrations which enhance the value of the text.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Accident Insurance: Erysipelas Following Extraction of Hair an Accident.—The defendant insurance company issued a policy of accident insurance to Mangol whereby it promised to pay certain benefits if he sustained injury or death provided such was not caused by disease germs or any kind of infection, "excepting only septic infection of and through a visible wound caused directly and independently of all other causes by violent and accidental means." The insured extracted by means of tweezers a hair, or hairs, from the inside of his nose with resulting bleeding. He applied iodine and inserted cotton in his nose. The next day his nose and face became swollen. Two days later he called a physician who diagnosed his condition as erysipelas. The next morning he died from the erysipelas and terminal bronchopneumonia. On the refusal of the defendant company to pay the benefits promised, the insured's wife brought suit. From a judgment in favor of the plaintiff, the defendant appealed to the United States circuit court of appeals, seventh circuit.

It was agreed, based on reasonable medical certainty, that erysipelas is a septic infection which develops because of some break in the skin or mucous membrane, such as a wound, an abrasion or a scratch, and that a pulling of a hair or hairs out of a nostril which resulted in a slight hemorrhage would produce a visible opening in the skin or mucous membrane. There was uncontroverted medical testimony that the erysipelas might or could have been caused by bacteria entering the insured's system through that opening. The terminal bronchopneumonia was the end result which followed the erysipelas owing to the lowered resistance of the patient.

In the judgment of the appellate court the evidence was sufficient to support the trial court's finding that the insured had died from a septic infection of and through a visible wound caused directly and independently of all other means by his plucking a hair, or hairs, from his nose with tweezers. The court could not agree with the defendant's contention that, because the insured intended to remove the hair or hairs, knew that by so doing he would cause a wound and knew or should have known that such wounding would probably end in serious consequences, the wound had not been caused by accidental means but had been voluntarily caused by the insured. It was the opinion of the court, therefore, that the evidence adduced justified the trial court's further finding that the insured had sustained a visible wound caused directly and independently of all other causes by violent and accidental means. Since the law in effect in the state of Illinois was controlling in this case, the court relied for its decision on a rule of law enunciated in *United States Mutual Accident Ass'n v. Barry*, 131 U. S. 100, 9 S. Ct. 755, 33 L. Ed. 60, which had been approved by the Supreme Court and some of the appellate courts of Illinois, that if in the act which precedes an injury something unforeseen, unexpected or unusual occurs which produces the injury then that injury has resulted through accidental means. In effect the court held that if an act is performed with the intention of accomplishing a certain result, and if in the attempt to accomplish that result another result occurs which was unintended and unexpected and not the natural and probable consequence of the intended act, then it cannot be said as a matter of law that the unintended result was not effected by "accidental means."

Accordingly, the circuit court of appeals affirmed the judgment in favor of the plaintiff.—*Mangol v. Metropolitan Life Ins. Co.*, 103 F. (2d) 14.

Malpractice: Res Ipsa Loquitur; Necrosis Following Injection of Local Anesthetic.—Preparatory to performing a circumcision on the plaintiff, the defendant physician made several injections of a solution which he believed to be novocain, a local anesthetic. At the point of the first injection the plaintiff experienced a burning and stinging sensation, and a blister formed which burst. The tissue in that area became necrotic, turned black and had to be excised. Later the plaintiff consulted another physician, who treated him for several weeks, but he was left "in such condition that he now at times suffers therefrom." He then brought suit for malpractice against the defendant physician. At the conclusion of the plaintiff's evidence, which consisted of testimony by himself and his wife, the trial court, on motion of the defendant physician, entered a judgment of nonsuit. From that judgment the plaintiff appealed to the Supreme Court of North Carolina.

The plaintiff did not allege that the defendant physician did not possess the requisite degree of learning, skill and ability necessary for the practice of his profession or that he failed to exert his best judgment in the treatment of the plaintiff's condition. Instead, he relied on the doctrine of *res ipsa loquitur*. He contended that the burning and stinging sensation which he experienced immediately after the first injection of the liquid and the destruction of tissue that followed was sufficient evidence to be submitted to the jury as tending to show (1) that the liquid injected was either novocain containing foreign caustic and deleterious chemicals or some liquid other than novocain that was caustic and deleterious, (2) that the liquid injected produced the condition complained of, and (3) that the defendant physician failed to diagnose properly the trouble and neglected to use proper treatment. But, said the Supreme Court, the doctrine of *res ipsa loquitur* is not applicable to this case. The plaintiff's testimony that the area to be operated on became "completely dead" following the injections only indicated that some type of anesthetic had been used. Was the burning and stinging sensation which followed the first injection due to some caustic chemical in the liquid or to some unusual and unexpected reaction of plaintiff's system to the medicine? Was the condition that followed the injection due to a caustic chemical in the liquid or to an infection? What was the defendant's diagnosis and what treatment should he have used? Did the second physician's diagnosis or treatment differ from that of the defendant? If the defendant incorrectly diagnosed the plaintiff's

condition and failed to apply the proper remedy, was this due to an error of judgment or to negligence? The answers to these questions, said the court, were not to be found in the plaintiff's evidence but were left to mere conjecture.

Practical application of medical science, continued the court, is necessarily experimental to a large degree. Owing to the varying conditions of human systems the result of the use of any medicine cannot be predicted with any degree of certainty. What is beneficial to many sometimes proves highly injurious to others. Even the expert cannot completely fathom or understand the reactions of the human system. To say then that an unexpected, unanticipated and unfavorable result of a treatment by a physician invokes the application of the doctrine of *res ipsa loquitur* would be to stretch that doctrine far beyond its real purpose. The court concluded, therefore, that the plaintiff had failed to offer any evidence tending to show that he had suffered any physical injury as a proximate result of any negligence on the part of the defendant.

Accordingly, the Supreme Court affirmed the trial court's judgment of nonsuit.—*Lippard v. Johnson* (N. C.), 1 S. E. (2d) 889.

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Association for the Surgery of Trauma, Atlantic City, N. J., June 7-8. Dr. Ralph G. Carothers, 409 Broadway, Cincinnati, Secretary.
- American Association for Thoracic Surgery, Cleveland, June 6-8. Dr. Richard H. Meade Jr., 2116 Pine St., Philadelphia, Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Association of Industrial Physicians and Surgeons, New York, June 6-7. Dr. Volney S. Cheney, Union Stock Yards, Chicago, Secretary.
- American Association of Physicians, New York, June 5. Dr. Paul H. ... Secretary.
- American Association of ... New York, June 8-10. Dr. Robert I. ... El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cahal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Heart Association, New York, June 7-8. Dr. Howard B. Sprague, 50 West 50th St., New York, Secretary.
- American Human Serum Association, New York, June 10. Dr. Maurice Hardgrove, 3321 North Maryland Ave., Milwaukee, Secretary.
- American Laryngological, Rhinological and Otolological Society, New York, June 6-8. Dr. C. Stewart Nash, 277 Alexander St., Rochester, N. Y., Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Neurological Association, New York, June 5-7. Dr. Henry A. Riley, 117 East 72d St., New York, Secretary.
- American Ophthalmological Society, Hot Springs, Va., June 3-5. Dr. Eugene M. Blake, 303 Whitney Ave., New Haven, Conn., Secretary.
- American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Protologic Society, Richmond, Va., June 9-11. Dr. Curtice Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, New York, June 10-11. Dr. William E. Costelow, 1407 South Hope St., Los Angeles, Secretary.
- American Rheumatism Association, New York, June 10. Dr. Loring T. Swaim, 372 Marlborough St., Boston, Secretary.
- American Society for the Study of Allergy, New York, June 10-11. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Tex., Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Therapeutic Society, New York, June 7-8. Dr. Oscar B. Hunter, 1835 Eye St., N. W., Washington, D. C., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for Research in Ophthalmology, New York, June 11. Dr. Conrad Berens, 35 East 70th St., New York, Secretary.
- Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Blvd., Los Angeles, Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- Montana Medical Association of Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- National Gastroenterology, New York, June 4-6. Dr. G. Randolph Manning, Iway, New York, Secretary.
- National Tuberculosis, Hatfield, 50 West ... Secretary.
- New Jersey Medical Society of Atlantic City, June 4-6. Dr. Alfred Stahl, 55 Lincoln Park, Newark, Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- Rhode Island Medical Society, Providence, June 5-6. Dr. Guy W. Wells, 124 Waterman St., Providence, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery 9:293-332 (March) 1940

- Treatment of Coronary Artery Sclerosis. M. M. Weiss, Louisville, Ky.—p. 293.
Abnormal Uterine Bleeding. L. F. Turlington, Birmingham.—p. 296.
The Hard of Hearing Patient: Recent Advances in Treatment. E. R. Nodine, Andalusia.—p. 299.
Carcinoma of Cervix. J. D. Peake, Mobile.—p. 300.
Gynecology and Endocrines in the Day of J. Marion Sims and Now. G. F. Douglas, Birmingham.—p. 303.

American Heart Journal, St. Louis 19:257-384 (March) 1940

- Characteristics of Normal Heart Sounds Recorded by Direct Methods. N. H. Boyer, R. W. Eckstein and C. J. Wiggers, Cleveland.—p. 257.
Mode of Development of Collateral Venous Circulation in Extremities. J. R. Veal, Washington, D. C.—p. 275.
Circulatory Effects Produced in Patient with Pneumopericardium by Artificially Varying Intrapericardial Pressure. J. D. Adcock, R. H. Lyons and J. B. Barnwell, Ann Arbor, Mich.—p. 283.
Compression of Subclavian Vein by First Rib and Clavicle, with Special Reference to Prominence of Chest Veins as Sign of Collateral Circulation. J. J. Sampson, J. B. de C. M. Saunders and C. S. Capp, San Francisco.—p. 292.
Response of Normal Dogs and Dogs with Experimental Hypertension to Standard Cold Stimulus. Caroline Bedell Thomas and T. A. Warbin, Baltimore.—p. 316.
Medial Degeneration, Cystic Variety, in Unruptured Aortas. A. Rottino, New York.—p. 330.
Sapheous Valves in Varicose Veins. J. E. Edwards and E. A. Edwards, Boston.—p. 338.
*Pathogenesis of Bacterial Endocarditis. C. S. Keefer, Boston.—p. 352.

Pathogenesis of Bacterial Endocarditis.—The symptoms and signs of a chronic infection, the local signs of valvular heart disease, embolic phenomena and bacteremia suffice, according to Keefer, for the diagnosis of bacterial endocarditis. The diagnosis is often difficult when there is no bacteremia and when the disease is active but no signs of valvular disease are present. Bacterial endocarditis without bacteremia must be distinguished from acute rheumatic endocarditis and from valvular disease with infection elsewhere. The absence of bacteremia, lack of progressive nephritis and of signs of embolic phenomena, the presence of pericarditis and cardiac arrhythmias point to rheumatic fever rather than endocarditis. A previously damaged heart valve of rheumatic fever, the presence of platelet thrombi on the heart valves, transient bacteremia and the presence of antibodies are all important in determining the development of bacterial endocarditis. Bacterial endocarditis is most commonly encountered following rheumatic fever or congenital heart disease. The most vulnerable persons are those in good health, comparatively free from symptoms suggesting heart failure and who have not had repeated attacks of acute rheumatic fever. The disease is less frequent in patients with syphilitic aortic insufficiency than in patients with aortic valvular disease caused by rheumatic fever. It is rare in patients who have had attacks of heart failure or who have chronic auricular fibrillation. The common congenital defects which predispose to infection are congenitally bicuspid aortic valves and patency of the ductus arteriosus, although the infection occurs in connection with other defects. Deformed valves make a favorable place for bacteria to focalize and survive. Platelet thrombi on the valves serve as a favorable environment for the localization of infection. Nonbacterial thrombotic endocarditis occurs in a variety of conditions, and these platelet thrombi may become infected and produce bacterial endocarditis. Thrombotic and rheumatic endocarditis predispose to bacterial endocarditis because both afford a suitable area for bacteria to localize and

gain a foothold, and, as such thrombi are relatively free of leukocytes, organisms focalizing here are able to survive. Since bacterial endocarditis always follows a bacteremia and its symptoms first assert themselves following extraction of teeth, tonsillectomy, respiratory infections or local infections with suppuration, it is imperative to discover the port of entry of the organism. Bacterial endocarditis may develop without a demonstrable preceding bacteremia, for nonhemolytic streptococci are normal inhabitants of the mouth and throat from a period shortly after birth until death. Experimental bacterial endocarditis in dogs, horses, rabbits and chickens suggests that damage of the valve, bacteremia and the presence of immune bodies all play a part in the pathogenesis of the disease. Platelet thrombi form on the heart valves shortly after they are ruptured and such thrombi serve as a suitable medium for the localization of bacteria. The situation is analogous to the conditions which favor the development of bacterial endocarditis in patients with previously damaged valves. Bacterial endocarditis has been produced experimentally by repeated intravenous injections of bacteria. An appreciation of the fact that the body possesses an immune mechanism capable of clearing the blood of organisms emphasizes the futility of trying to treat this disease with vaccines, immune serum or blood transfusions. The difficulty of destroying the organisms lies in the fact that they are capable of surviving in vegetations. Their survival is made possible by the building up of a wall of fibrin in the vegetation. The wall of fibrin is a suitable medium for the growth of the organisms and it prevents the invasion of leukocytes. The possibilities for sterilizing the vegetations would appear to be (1) the actual destruction of vegetations by chemical agents or (2) the prevention of deposits of fibrin. If this can be accomplished, the patient should recover. Patients who recover from infection of the heart valves may die as a result of the damage (subacute and chronic glomerular nephritis, progressive anemia, embolism and splenomegaly) that has been inflicted during the active, infective stage of the disease. There exists postmortem evidence of healed cases of bacterial endocarditis without any of the foregoing sequelae. It has been suggested that these are cases of bacterial endocarditis in which recovery occurred.

American J. Digestive Diseases, Huntington, Ind. 7:85-140 (March) 1940

- Effect of Various Antacids on Hydrogen Ion Concentration of Gastric Contents. J. B. Kirsner and W. L. Palmer, Chicago.—p. 85.
Studies in Cellular Exudates of Bowel Discharges: II. Differential Diagnosis of Amebiasis: Types of Cells Found in Bowel Discharges of Patients with Bowel Complaints. Z. Berecovic, New York.—p. 93.
*Hypoglycemic Reactions from Protamine Zinc Insulin. W. L. Lowrie Jr. and D. P. Foster, Detroit.—p. 101.
Bactericidal Action of Metallic Ions in Broth Containing Dehydrated Apple. I. A. Manville and N. P. Sullivan, Portland, Ore.—p. 106.
Relationship of Diet to Self-Regulatory Defense Mechanism: III. Organic Acids and Pectin. I. A. Manville and N. P. Sullivan, Portland, Ore.—p. 111.
Aneurysm of Abdominal Aorta. M. Feldman, Baltimore.—p. 114.
Emptying Time of Normal Human Stomach as Influenced by Acid and Alkali: Review of Literature. E. J. Van Lier and C. K. Sleeth, Morgantown, W. Va.—p. 118.
Urinary Amylase: Its Estimation and Significance. D. L. Dozzi, Philadelphia.—p. 123.
II. Biliary Pigment Curve During Secretin Test: Its Diagnostic Significance in Nonfunctioning Gallbladder. J. S. Diamond, S. A. Siegel and S. Myerson, New York.—p. 133.
Influence of Weight of Duodenal Tube Tip on Its Entrance Time. M. Lake, New York.—p. 136.
Method for Continuous Recording of Gastric Hydrogen Ion Concentration in Situ: II. Experimental Details. J. Flexner, New York, and M. Kniazuk, Rahway, N. J.—p. 138.

Hypoglycemic Reactions from Protamine Zinc Insulin.—Lowrie and Foster observed eighty-nine persons who were given both protamine zinc and regular insulin. None were included in the study who had taken protamine zinc insulin for less than six months. Forty-three of the eighty-nine patients had no reactions from either type of insulin. Forty-two patients were subject to hypoglycemic reactions while taking regular insulin. Thirty-two patients had reactions after a change to protamine zinc insulin. Four patients who had been free from reactions on regular insulin complained of hypoglycemic symptoms with protamine zinc insulin. Of the twenty-eight patients having reactions from both forms of insulin, twenty-one observed less frequent reactions with pro-

tamine zinc insulin. Two patients had more frequent reactions with protamine zinc insulin. Decreased severity of reactions with protamine zinc insulin was noticed by nineteen patients. Four patients stated that hypoglycemic symptoms were more severe with protamine zinc insulin than with regular insulin. Insulin reactions were much more frequent in the under nourished. Of the thirty-two patients who were above normal weight, eight experienced reactions from regular insulin and only four from protamine zinc insulin. Reactions were encountered more frequently when higher doses of insulin were necessary for adequate control of the disease. Hyperglycemia in most patients could be controlled with a single daily injection of protamine zinc insulin and reactions in these patients were less frequent. Twenty-nine patients complained of nervousness, a sensation of trembling in the epigastric region and weakness. Twenty-three patients complained of hunger, twenty-one of sweating and blurring of vision, nineteen of headache and faintness, thirteen of somnolence and dizziness, eight of nausea, seven of paresthesias, six of disorientation and five of loss of consciousness. One patient has had two attacks of transitory hemiplegia. In changing from regular to protamine zinc insulin the following plan seemed to provide an interim free from hyperglycemia: On the first day four fifths of the total daily regular insulin dose is administered as protamine zinc insulin. If three doses of regular insulin are being used, the first two doses are given as usual but only half of the third dose. On the second day the same dose of protamine zinc insulin is given and the full first dose of regular insulin but the noon dose is halved and the last dose omitted. On the third day the same amount of protamine zinc insulin is administered; the breakfast dose of regular insulin is halved and the lunch and supper doses are omitted. On the fourth day protamine zinc insulin alone is administered. Readjustment of this dose may be necessary on subsequent days. Every new patient should be instructed not to disregard mild symptoms but to consider them as possible hypoglycemic manifestations. By proper education and strict supervision at the beginning of treatment much can be accomplished toward the prevention, early recognition and proper treatment of protamine zinc insulin reactions.

American Journal of Hygiene, Baltimore

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Dietary Deficiencies and Iron Salts in Hookworm Infections. G. F. Otto and J. W. Landsberg, Baltimore.—p. 37.

Tuberculosis in Medical Students and Young Physicians.—Hetherington and Israel secured information as to the incidence and course of tuberculosis of 98 per cent of the 400 physicians who had been examined as members of the classes graduating from the Medical School of the University of Pennsylvania in 1930, 1931 and 1932. Tuberculous infiltration of the lungs, in most instances asymptomatic, was found in about 18 per cent. Clinical tuberculosis requiring sanatorium care or collapse therapy developed within six to eight years after graduation in fifteen physicians, ten of whom had positive sputum. Two of the fifteen had had clinical tuberculosis in medical school before routine examination was instituted. Three physicians

had been negative on x-ray examination at graduation, while asymptomatic tuberculous lesions were discovered during the medical course in the remaining ten. Symptoms developed in the first two years after graduation in eight of the fifteen men. There was no recurrence of symptoms after graduation in three other men whose medical course had been interrupted by clinical tuberculosis requiring sanatorium care. The asymptomatic infiltrations found in 18 per cent of the 400 medical students consisted in more than a third of small, strandlike infiltrations. These lesions appeared to be chiefly of epidemiologic interest, but flocculent asymptomatic infiltrations, particularly when appearing below the clavicle, frequently resulted in clinical illness after graduation. Serious disease developed less often after graduation in students with lesions similar in character and extent in whom the diagnosis was manifest tuberculosis. This was probably due to the more radical restriction of activities and increase in rest advised. Absence of symptoms in students with extensive lesions, and the trivial character of symptoms described by students with minimal tuberculous lesions, indicated that definite ill health was rarely caused by tuberculous infiltrations until lesions became moderately advanced. Physicians who reported the development of clinical tuberculosis after graduation had moderately advanced or far advanced disease in every instance. Impairment of health sufficient to arouse suspicion of tuberculosis was thus apparently not noticed even by physicians while lesions were minimal. Asymptomatic tuberculous infiltrations progressed to clinical and fatal disease less often in medical students than in other groups more typical of the general population. This is attributed principally to the willingness of medical students and physicians to be treated when symptoms are slight or absent.

Bacteria in Air of Operating and Delivery Rooms.

MacDonald states that miscellaneous bacteria, including hemolytic staphylococci and alpha and beta hemolytic streptococci, were isolated from the air of operating and delivery rooms. The average number of organisms recovered from 10 cubic feet of air throughout the actual operating day was as follows: total number of bacteria 230,494, hemolytic staphylococci 3.49, alpha hemolytic streptococci 0.556, beta hemolytic streptococci 0.02. The Petri plate method of determining the bacterial content of the air under the conditions of the study gave results comparable to those obtained by the Wells air centrifuge. The extent of bacterial contamination in operating and delivery room air is influenced by the number of individuals and the amount of activity. The settling rate of droplet nuclei in these locations is such that there is no accumulation from day to day. The possibility of infection in clean operative wounds due to settling of droplet nuclei which contain hemolytic staphylococci and hemolytic streptococci must be recognized.

Air-Borne Beta Hemolytic Streptococci.—During the course of a scarlet fever epidemic in a maternity division of a hospital due to type III (Griffith) streptococcus, MacDonald studied thirty-two 10 cubic foot samples of air in an attempt to ascertain the extent of droplet nuclei transmission of organisms responsible for the epidemic. He found that, although hemolytic streptococci may be recovered from the air as droplet nuclei, the dilution is such that air-borne transmission of scarlet fever appears slight.

American Journal of Ophthalmology, St. Louis

23:245-370 (March) 1940

Experimental and Clinical Studies in Hydrocephalus, with Especial Reference to Occurrence of Papilledema. J. Q. Griffith Jr., W. E. Fry and A. McGuinness, Philadelphia.—p. 245.

Lens Lesions in Contusions: Medicolegal Study. M. Davidson, New York.—p. 252.

*Some Observations on Use of Sulfanilamide in Trachoma and Associated Ocular Conditions. W. D. Spining, Ganado, Ariz.—p. 271.

Pathogenesis of Retinitis Pigmentosa (Sclerosis Pigmentosa Choroid-retinalis). Lizzie Levy-Wolff, Tel-Aviv, Palestine.—p. 275.

Hemangioma of Orbit: Report of Six Cases with Clinical and Anatomic Findings. A. E. Meisenbach Jr., St. Louis.—p. 286.

Is Myopia a Deficiency Disease? H. Miller, Kansas City, Mo.—p. 296.

Trachoma in Japan, with Special Reference to Public Health. H. Shiga, Tokyo, Japan.—p. 306.

Sulfanilamide for Trachoma.—Spining administered sulfanilamide to fifteen adult patients with acute bulbar conjunctivitis with or without phlyctenules or corneal ulcers superimposed on a trachoma of long standing. The drug was

administered in daily doses of from 4 to 6 Gm. As soon as improvement was apparent, the dosage was decreased. All but one patient showed marked improvement of the acute symptoms in from three to four days, and in the majority photophobia, lacrimation, hyperemia and edema of the lids subsided entirely within three weeks. Corneal ulcers and phlyctenules cleared more slowly. Granulations of the palpebral conjunctivas and pannus, although improved, were always present at the time of discharge. Seventeen school children between the ages of 8 and 14 years, all having chronic trachoma diagnosed by an eye specialist, received doses of sulfanilamide suggested by Loe. In all of these cases trachoma had been present for a year or more. Clinically the cases were fairly uniform. Tearing, photophobia and bulbar conjunctivitis were definitely improved or had disappeared after three or four days of treatment. The conjunctivas of the lids became less congested and the granulations appeared paler and smaller. At the end of the treatment nine patients receiving sulfanilamide for from twenty-one to twenty-four days still presented granulations and velvet patches on the upper palpebral conjunctiva, and the pannus was still visible with the slit lamp. Only one of the seventeen cases could readily have been diagnosed as active trachoma at the end of treatment. In the author's opinion the results were no more striking than would be expected in similar cases hospitalized for the same period and given any of the usual forms of treatment. A check up of twelve of the children by an eye specialist three months after therapy was discontinued showed some improvement as compared to the condition of the eyes prior to the treatment. Considerable improvement was observed as compared with cases treated by other methods. However, there was no evidence of a complete cure or arrest of the trachomatous process.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.
43:305-468 (March) 1940

- *Correlation of Postmortem Chest Teleroentgenograms with Autopsy Findings, with Special Reference to Pulmonary Embolism and Infarction. A. O. Hampton and B. Castleman, Boston.—p. 305.
Cystic Bronchiectasis: Clinical and Roentgenologic Study. D. Reischer and I. G. Tcherikoff, New York.—p. 327.
Ventriculographic Localization of Intracranial Tumors: III. Tumors of Cerebellum and Fourth Ventricle. V. C. Johnson and C. F. List, Ann Arbor, Mich.—p. 346.
Incidence of Hyperostosis Frontalis Interna in Female Patients Admitted to a Mental Hospital. W. W. Eldridge and G. A. Holm, Washington, D. C.—p. 356.
Persistent Fibrin Body: Problem in Diagnosis. A. Rest, Spivak, Colo.—p. 360.
Carcinoma as Complication of Achalasia of Cardia. K. Kornblum and L. C. Fisher, Philadelphia.—p. 364.
Spontaneous Pneumoperitoneum Without Demonstrable Visceral Perforation. C. L. Hinkel, New York.—p. 377.
Carcinoma of Jejunum: Case Report. J. H. Harris and J. E. Green, Carlisle, Pa.—p. 383.
Saccular Abdominal Aortic Aneurysm: Analysis of Forty-Eight Cases. M. J. Hubeny and S. Pollack, Chicago.—p. 385.
Normal Variation in Gastrointestinal Response of Healthy Children. Icie G. Macy, L. Reynolds, Helen J. Souder and Mary Bates Olson, Detroit.—p. 394.
*League of Nations Work on a Uniform Presentation of Results of Radiation Therapy in Uterine Cancer. J. Heyman, Stockholm, Sweden.—p. 404.
Treatment of Infected Hemangiomas. E. A. Pohle, Madison, Wis.—p. 408.
*Arthritis and Para-Arthritis Treated with Roentgen Rays: Report of 161 Cases. T. B. Weinberg, New York.—p. 416.
Roentgen Therapy of Bilateral Parotid Fistula. R. J. Reeves, Durham, N. C.—p. 425.
Peripheral Nerve Destruction: Unusual Sequela of Radium Therapy. I. N. Holtzman and W. E. Howes, Brooklyn.—p. 426.
Use of Cathode Ray Oscillograph for Measuring Roentgen Tube Voltage. C. Weyl, S. R. Warren Jr. and D. B. O'Neill, Philadelphia.—p. 428.

Postmortem Chest Teleroentgenograms with Necropsy.—Hampton and Castleman made postero-anterior and lateral roentgenograms of the chest from the vertically suspended body after death at a distance of 7 feet. Postmortem roentgenograms corresponded to those taken ante mortem during quiet breathing or expiration. The differences in the antemortem and postmortem roentgenograms consisted of the degree of aeration of the lung and the alteration in the size and shape of the cardiovascular shadows. At necropsy the lungs were removed with the trachea, great care being taken not to tear the visceral pleura. Kaiserling solution No. 1 (a formaldehyde fixative) was instilled by gravity through the trachea until both lungs were approximately the size they were during life. The trachea was clamped and the specimen submerged in a large crock con-

taining the same fixative and allowed to remain for about a week. At the end of this period the lungs were sectioned by the pathologist in the presence of the roentgenologist. An attempt was made to find anatomic explanation for the shadows seen on the postmortem roentgenograms, and the roentgenologist attempted to find in the roentgenogram the lesions present in the specimen. The authors have studied 400 cases by this method. In the present study they were concerned with the recognition of pulmonary embolism and infarction. Use was made of a larger number of cases drawn from the 3,500 necropsies performed during the ten year period prior to the combined study. In this series pulmonary embolism and infarction were noted in 9 per cent of the cases, and in 3.5 per cent it was considered a major cause of death. In the combined study group of 400 cases, 14 per cent showed either pulmonary embolism or infarction, an apparent increase of more than 50 per cent. The authors emphasize the higher proportion among medical rather than surgical patients. Infarctions of the lung were found to be in contact with pleural surfaces, with the long axis of the infarct parallel to the longest pleural surface involved. The cardiac margin of the infarct is convex or "hump" shaped. Special attention is called to healing and healed infarcts. These produce linear shadows on the roentgenograms and are more easily recognized by the described method. The term "incomplete infarction" is suggested for the syndrome characterized by pleural pain or blood spitting or both, associated with a rapidly appearing and disappearing infarct-like area of consolidation in the lung without alveolar wall destruction. The authors conclude that there is often insufficient clinical evidence to allow a diagnosis of pulmonary infarction. There may be no pleural pain, blood spitting or an obvious source of embolism. In the presence of any one of these symptoms associated with x-ray evidence consistent with an infarct, the diagnosis may be made. In view of the fact that one third of the cases of pulmonary infarction is represented by patients who have not been operated on and who have no demonstrable cardiac lesion, it is important to consider pulmonary infarction in the differential diagnosis of pulmonary disease in ambulatory patients. An accurate diagnosis of pulmonary infarction is important in order that proper treatment may be instituted and fatal embolus prevented.

Radiation Therapy in Uterine Cancer.—According to Heyman, the Health Committee of the League of Nations decided in 1935 to issue annual reports on the uniform presentation of the results of radiation therapy in uterine cancer. The primary object of the proposed annual statistical reports was to provide a convenient reference work. In order to facilitate uniform presentation of data, the committee has adopted certain rules to be observed. "Notes for guidance of collaborators" specify the clinical types of cases to be reported, namely cancer of the uterine cervix, including cancer of the stump of the cervix. The following types are to be excluded: (1) cancer of the corpus uteri and vagina, (2) recurrences after radical operation, and (3) patients primarily submitted to combined operative and radiation treatment. The "notes for guidance" further specify that only cases microscopically diagnosed as cancer are reportable. Chorio-epithelioma, sarcoma, malignant mixed tumors and precancerous conditions are to be excluded. It is further stipulated that (1) the report is to relate to the total number of patients whose radiologic treatment was begun during the year to which the statement refers, as well as all patients examined with a view to treatment but not actually treated; (2) the statement is not to be completed until a period of observation of at least five years from the beginning of the treatment has expired in all cases included. The clinical material and the therapeutic results are to be presented in tabular form.

Arthritis and Para-Arthritis Treated with Roentgen Rays.—Weinberg has treated, since 1931, 160 cases of arthritis and other painful joint conditions with roentgen radiation. In the series were included arthritis, mainly of the hypertrophic variety, subdeltoid and subacromial bursitis, and cervical, dorsal and lumbar spondylitis. The predominant and often the only subjective symptom was pain of variable intensity and duration. Associated symptoms were limitation of motion, tenderness, swelling, in rare instances elevated temperature and malaise.

A large percentage of the patients had positive x-ray signs. The presence or absence of x-ray evidence of disease, however, was not considered a criterion in instituting the treatment. Radiation was given directly over the involved area. The dose was from 100 to 150 roentgens two or three times weekly and varied from three to twelve treatments. The factors were 180 kilovolts, 4 milliamperes, 0.5 mm. of copper plus 1 mm. of aluminum and 50 cm. focal skin distance; the fields varied from 10 by 10 cm. to 15 by 20 cm., depending on the size and the position of the involved area. The shorter the duration of the symptoms the sooner the condition was alleviated. The more chronic cases required a longer period to bring about satisfactory results. The large majority of the patients were completely relieved of pain and remained symptom free. Several patients had one or more recurrences and were relieved by a repeated course of treatment. A few did not respond to this therapy. A number of cases showed complete absorption of the calcified foci with disappearance of symptoms. The cases reported were referred by practicing physicians after they had, as a rule, exhausted other orthodox and standard types of treatment. The majority of the patients were followed up as long as five or six years. The author feels that the results obtained justify continuation of this form of therapy in para-arthritis associated with pain.

American Review of Tuberculosis, New York

41:283-402 (March) 1940

- Pulmonary Tuberculosis in Cattle: Location and Type of Lesions in Naturally Acquired Tuberculosis. E. M. Medlar, Mount McGregor, N. Y.—p. 283.
- Treatment of Pulmonary Tuberculosis in Adolescents. H. D. Chadwick and Helen W. Everts, Waltham, Mass.—p. 307.
- Extrapleural Pneumothorax: Twenty-One Patients Treated from November 1937 to March 1938. H. F. Newton, F. Dawson and J. E. Dunphy, Boston.—p. 319.
- Paraffin Pack in Treatment of Pulmonary Tuberculosis. F. Ottaviano, Rochester, N. Y.—p. 334.
- *Oxygen as Cause of Reactions Following Pneumothorax Refills. H. E. Pugsley, Gravenhurst, Ont.—p. 339.
- Total Agranulocytosis Following Gold Therapy: Report of Case with Recovery and Review of Literature. G. S. Mirick, San Francisco.—p. 344.
- Actinomycosis of Lung and Pleura. E. C. Cutler and R. E. Gross, Boston.—p. 358.
- Reorganization of Antituberculosis Campaign in Sweden. O. L. Glogauer, H66r, Sweden.—p. 368.
- Unrecognized Tuberculosis in General Hospitals. R. E. Plunkett and E. X. Nikol, Albany, N. Y.—p. 381.

Oxygen Reactions Following Pneumothorax Refills.—

According to Pugsley, about 3 per cent of the tuberculous patients who have artificial pneumothorax at his institution are subject to a febrile reaction after each refill. The reaction (fever, malaise, chest pain, deep breathing, headache, general aches, nausea and/or vomiting) sets in about twelve hours after the refill and lasts for from twenty-four to forty-eight hours. When helium refills were given to same patients little or no reaction took place. Pneumothorax can be safely induced and maintained with helium, which appears to cause no irritation of the pleura. Refills slightly larger in amount than air are required to maintain the pneumothorax. Six patients subject to reactions after air refills had either slight or no reactions after helium refills. To determine the element in air which causes reactions the author gave nitrogen refills to each of the six patients, a mixture of helium and oxygen, and in three oxygen alone. No reaction followed the nitrogen refills, a slight or moderately severe reaction followed the mixture of helium and oxygen and a moderately severe reaction followed the oxygen refills. If a patient has a pneumothorax complicated by chronic tuberculous pleuritis, a refill containing oxygen may cause an acute febrile reaction of short duration which probably represents a flare-up of the tuberculous pleuritis. This observation supports the theory that oxygen supply is a vital factor in the activity of tuberculous foci and that the rich oxygen supply of the pulmonary parenchyma is a factor in determining the relatively low resistance of pulmonary tissue to the invasion of tubercle bacilli. In a case of tuberculous effusion an acute febrile reaction may follow aspiration of the fluid and air replacement. In such cases aspiration and nitrogen replacement should be tried. As nitrogen is less rapidly absorbed than helium, it is more suitable for refills.

Archives of Dermatology and Syphilology, Chicago

41:639-816 (April) 1940

- Metastases of Scalp Simulating Turban Tumors. F. Ronchese, Providence, R. I.—p. 639.
- New Modification of Patch Test (Chamber Method). I. Rokstad, Oslo, Norway.—p. 649.
- Androgenic Substance and Sweat. T. Cornbleet and Broda Barnes, Chicago.—p. 654.
- Role of Vitamin C in Various Cutaneous Diseases. W. F. Lever and J. H. Talbott, Boston.—p. 657.
- Treatment of Psoriasis with Concentrated Viosterol Under Auspices of Cincinnati Society of Dermatology and Syphilology. G. E. Clarke, Cincinnati.—p. 664.
- Rate of Ulceration of Epitheliomas of Skin and Lip. W. D. Wilson, Savannah, Ga.—p. 667.
- Multiple Symmetrical Gangrene Occurring During Prolonged Administration of Aminopyrine: Report of Case. J. A. Buchanan, Brooklyn.—p. 678.
- Relapsing Febrile Nonsuppurative Panniculitis: Report of Two Cases. I. L. Tilden, H. C. Gotshalk and E. V. Avakian, Honolulu, Territory of Hawaii.—p. 681.
- Nitritoid Reaction to Trypsinamide: Report of Case. H. A. Levy, Chicago.—p. 690.
- Cutaneous Absorption: I. Direct Technique for Demonstrating Percutaneous Absorption of Antigens. A. Walzer, Brooklyn.—p. 692.
- Pruritus Ani and its Relationship to Seborrheic Eczema and Dermatitis. P. D. Foster and M. R. Hill, Los Angeles.—p. 699.
- Fixed Eruption from Magnesium Hydroxide: Polysensitivity. E. W. Abramowitz, New York, and J. J. Russo, Albany, N. Y.—p. 707.
- Pyoderma Gangraenosa Treated with Sulfanilamide: Report of Case. A. L. Weiner, Cincinnati.—p. 711.
- Qualitative Measurements of Low Voltage Shock-Proof X-Ray Tubes. M. C. Reinhard, Buffalo.—p. 718.
- Reticulum Cell Sarcoma: Report of Case with Pronounced Cutaneous Manifestations. C. T. Bingham and S. S. Quarrier, Hartford, Conn.—p. 722.
- Cutaneous Hypersensitivity to Triethanolamine: Report of Two Cases. G. H. Curtis and E. W. Netherton, Cleveland.—p. 729.
- Generalized Trichophyton Purpureum Infection Simulating Dermatitis Herpetiformis: Report of Case. J. A. Tolmach and J. Schweig, New York.—p. 732.

Archives of Neurology and Psychiatry, Chicago

43:615-858 (April) 1940

- Temporary Arrest of Circulation to Central Nervous System: I. Physiologic Effects. L. M. Weinberger, Mary H. Gibbon and J. H. Gibbon Jr., Philadelphia.—p. 615.
- *Tuberculoma of Brain. H. F. Buchstein, Minneapolis, and A. W. Adson, Rochester, Minn.—p. 635.
- Studies in Dystrophia Myotonica: III. Experimental Studies in Myotonia. A. Ravin, Denver.—p. 649.
- Metrazol Convulsions: Changes in Oxygen, Carbon Dioxide and Sugar Contents of Arterial and of Internal Jugular Venous Blood. J. Loman, M. Rinkel and A. Myerson, Boston.—p. 682.
- Investigation of Electrolytic Rectification in Nerves: Invalidity of Pflüger's Law of Contraction. L. J. Pollock and I. Finkelman, Chicago.—p. 693.
- Action Potentials of Muscles in Rigidity and Tremor. P. F. A. Hoefel and T. J. Putnam, New York.—p. 704.
- Influence of Insulin and of Stimulation of Sympathetic Nervous System on Blood: Study of Sugar Content, Carbon Dioxide Tension and pH. S. Domm and E. Gellhorn, Chicago.—p. 726.
- Paraplegia in Flexion. L. E. Daniels, Denver.—p. 736.
- Amyotrophic Lateral Sclerosis: Anatomic and Pathologic Considerations. G. B. Hassin, Chicago.—p. 765.
- Meningioma Showing Sarcomatous Degeneration. F. K. Bradford, Houston, Texas, and A. J. Miller, Louisville, Ky.—p. 778.
- Effect of Insulin Shock on Heart and Blood Pressure in Treatment of Schizophrenia. M. J. Farrell, Waltham, Mass., and E. Vassaf, Istanbul, Turkey.—p. 784.
- Monochorea and Somatotropic Localization. C. Davison and S. P. Goodhart, New York.—p. 792.
- Physiologic Regulation of Cerebral Circulation. H. S. Forbes, Boston.—p. 804.

Tuberculoma of Brain.—Buchstein and Adson report twelve microscopically verified cases of tuberculoma of the brain observed at the Mayo Clinic. Operation was performed in six. Tuberculosis of the brain is always secondary to a tuberculous focus elsewhere. The tubercle bacilli may reach the brain and its coverings by the growth of a contiguous lesion, they may pass from tuberculous lesions in the nasal and pharyngeal cavities to the cranial meninges by way of the perineural lymphatic channels accompanying some of the cranial nerves or, as is generally agreed, the great majority of tuberculous lesions of the brain arise by blood borne metastasis from foci which may be confined to one organ (usually the lungs) or may be generalized. Tuberculomas are divided into asymptomatic and those associated with clinical evidence of intracranial disease. Most instances of asymptomatic tuberculoma escape detection. Tuberculomas giving rise to associated symptoms of intracranial disease are divided into two groups. In the larger group the symptoms are exclusively or predominantly those of tuberculous

meningitis and the tuberculomas are more often small and multiple. There were four cases of this type in the authors' series. In two, in addition to the basilar meningitis, about thirty-five small tuberculomas of approximately equal size and similar structure lying in all parts of the brain were found. They had evidently resulted from a shower of tubercle bacilli in the blood stream. In the other two cases one and two small chronic tuberculomas of the cerebellum were observed. Tubercle bacilli were found in them only after prolonged search. In the other group (eight cases) the symptoms are attributable to the tuberculoma itself. They may be localizing in character or may be indicative of increased intracranial pressure. Tuberculomas producing symptoms of cerebral tumor occur at all ages and in persons who have but a single extracranial tuberculous focus, usually in the lungs or the associated lymph nodes. Tuberculomas associated with the clinical picture of meningitis occur predominantly in the early years of life and in association with generalized tuberculosis. The pathologic characteristics of tuberculomas are not different from those of tuberculosis elsewhere. Tuberculomas may be positively identified by finding acid-fast bacilli in them. The clinical syndromes which they produce are not significantly different from those produced by other varieties of cerebral tumor. A correct etiologic diagnosis is made only when the patient has active tuberculosis in another organ or in the presence of a positive tuberculin reaction in a child. A history of tuberculous disease in the past is suggestive but not conclusive. Laboratory studies do not aid in the differential diagnosis. The treatment of tuberculomas of the brain must be directed against tuberculosis as a disease and against the local lesion if possible. Attempts at removal of a cerebellar tuberculoma almost always end in disaster, owing to the development of tuberculous meningitis. Decompressive operations may afford relief until healing takes place. Fibrocaseous tuberculomas of the cerebrum and arachnoid tuberculomas, particularly those in the rolandic region, form the best subjects for surgical extirpation. Their symptoms permit of an early diagnosis and they are accessible to removal in one piece. Good results will follow in a gratifying percentage of cases.

Canadian Medical Association Journal, Montreal

42:209-310 (March) 1940

- Postoperative Results in Lesions Involving Spinal Cord and Cauda Equina. K. G. McKenzie, Toronto.—p. 209.
New Method of Repairing Anterior Crucial Ligament of Knee. F. J. Tees, Montreal.—p. 214.
Misplaced Gastric Mucosa as Cause of Massive Rectal Hemorrhage. G. A. Fleet, Montreal.—p. 216.
Expectorant Action of Resyl and Other Guaiacols. W. F. Connell, G. M. Johnston and E. M. Boyd, Kingston, Ont.—p. 220.
Toxic Goiter: Present Status of Treatment. W. O. Thompson, Chicago.—p. 224.
Treatment of Painful Feet. G. W. Armstrong, Ottawa, Ont.—p. 227.
Actinomyces. H. S. Morton, Montreal.—p. 231.
Eye Signs in Intracranial Disease. R. J. P. McCulloch, Toronto.—p. 236.
Management of Labor in Elderly Primiparas. J. W. Duncan and W. E. Gibson, Montreal.—p. 240.
Diagnosis and Treatment of Endometriosis. G. Hooper, Ottawa, Ont.—p. 243.
Hydatid Disease. J. C. Sutton, Montreal.—p. 247.
*Extrahepatic Tumors of Biliary Tract. C. K. P. Henry, Montreal.—p. 251.
Selection of Anesthesia for Upper Abdominal Operations. C. C. Stewart, Montreal.—p. 254.
Child Care During War. A. Brown, Toronto.—p. 257.
Problems in Conservative Treatment of Sinusitis. T. E. Briant, Welland, Ont.—p. 260.
Use of Tryparsamide in Optic Atrophies of Syphilis. S. E. C. Turvey, Vancouver, B. C.—p. 264.

Actinomyces.—Morton points out that because actinomyces is rarely diagnosed many cases are missed and an understanding of the disease lags far behind that of other chronic granulomas. Its bacteriology is complicated by the large number of organisms which have been described, only a few of them being pathogenic to man and none having any marked pathogenicity for laboratory animals. There is no generally accepted classification. Until a universally accepted bacteriologic classification is available clinicians will have to be content with the presence or absence of the ray fungus and call the disease "actinomyces." The appropriate drug or vaccine will have to be determined in each individual case. The many forms of treatment testify to the inefficiency of any one type of therapy. Of the drugs, potassium iodide in moderate to large doses, i. e.

from 150 to 300 grains (9.7 to 19.5 Gm.) daily, is still the best therapy. Sulfanilamide used in two cases showed definite improvement in one but there was no observable effect in the other. This corresponds with other reports, and the conflicting accounts may perhaps be explained by peculiarities of the strain as well as by the concomitant infection present; e. g., in the first of the author's three cases, with a mixed infection with staphylococci, the drug had little or no effect, whereas in the third case, with an unusual strain of anaerobic Actinomyces, the improvement was appreciable. Surgical treatment is imperative in nearly all cases. When complete excision is possible it should be carried out; otherwise incision and drainage of all abscesses is indicated, combined with such other treatment as may seem best suited to the case. The prognosis varies with the site affected. In all suggestive cases early and diligent search for the ray fungus should be undertaken and a culture made from the material of the wall of the abscess when the pus is sterile.

Extrahepatic Biliary Tumors.—Henry emphasizes the frequent lack of diagnosis of jaundiced patients admitted to the hospital, and the frequency of obstructive jaundice due to carcinoma, especially that of the head of the pancreas. His studies include surgical specimens, biopsies and necropsies of the Central Division of the Montreal General Hospital for a period of ten years. There were 820 gallbladders removed and of these fifteen were removed for tumors of the extrahepatic biliary system. There were twenty-five women and thirty-five men with such diagnoses. The clinical records show fourteen patients in whom carcinoma of the gallbladder was diagnosed. There were thirty-eight patients with a diagnosis of carcinoma of the head of the pancreas with obstructive jaundice and three of carcinoma of the cystic, hepatic or common duct diagnosed at operation. The author believes that there occur each year five or six cases of obstructive jaundice due to carcinoma in the extrahepatic biliary system in the Central Division of the Montreal General Hospital. About 103 operations are performed annually on the biliary tract, making 6 per cent of these tumors extrahepatic. He concludes that the onset of painless jaundice in a person more than 50 years of age, with few exceptions, means carcinoma of the head of the pancreas. Pruritus frequently precedes jaundice in such cases. Repeated attacks of colic or of transient jaundice in a patient free from these for some years is suggestive of malignant change and calls for an exploratory operation. Operation on the gallbladder should be undertaken only by a surgeon who is prepared to deal with a tumor as well as with a stone. For obstructive jaundice due to a tumor in the lower ductal system which is not operable, cholecystogastrostomy appears to offer the patient the longest period of well being and freedom from cholemia. A hard mass at the head of the pancreas in a jaundiced patient may be a stone, even when thought otherwise by the operator. A fibrosing pancreatitis may simulate tumor and produce jaundice. Diabetes occurred but seldom in the sixty cases, while a mild hyperglycemia was a fairly common observation.

Canadian Public Health Journal, Toronto

31:99-162 (March) 1940

- Treatment of Paretic Neurosyphilis by Malaria and Tryparsamide. C. M. Crawford, Kingston, Ont.—p. 99.
Child Care in Wartime. A. Brown, Toronto.—p. 106.
Industrial Medical Service in Peace and War. F. M. R. Bulmer, Toronto.—p. 111.
Prevalence of Venereal Disease Infections in Vancouver. E. N. Brown and D. H. Williams, Vancouver, B. C.—p. 120.
Epidemiologic Investigations in Quebec. A. R. Foley, Quebec, Quebec.—p. 124.
Foster-Home Placement of Problem Children. E. P. Lewis, Toronto.—p. 127.

Florida Medical Association Journal, Jacksonville

26:427-474 (March) 1940

- Myelogenous Leukemia. W. G. Doern, Daytona Beach.—p. 439.
Pediatrics Fifty Years Ago and Today. W. W. McKibben, Miami.—p. 442.
Fractures of Pelvis: Report of Seven Cases and Their Treatment. J. I. Turberville, Century.—p. 447.
Treatment of Meningococcal Meningitis. D. F. H. Murphy, St. Petersburg.—p. 451.
Zinc Peroxide in Infected Wounds. C. L. Perry, Miami.—p. 453.
Sporotrichosis: Case Report. W. M. Davis, St. Petersburg.—p. 456.

Illinois Medical Journal, Chicago

77:193-288 (March) 1940. Partial Index

- Perforations of Gastrointestinal Tract. Gatewood, Chicago.—p. 213.
Expansion of Medical Idea in Veterans' Organization. O. Brooks, Chicago.—p. 224.
Are Regulations for Admission to Veterans' Hospitals and Facilities Adhered To? R. C. Bourland, Rockford.—p. 230.
Bilateral Cortical Necrosis of Kidneys. J. A. Tuta and A. Vander-Kloot, Chicago.—p. 238.
Studies in Coronary Disease: I. Relation of Coronary Sclerosis to Heart Weight and to Right and Left Ventricular Hypertrophy. A. S. Shohet, S. J. Taub and H. Kupersmith, Chicago.—p. 240.
Fatal Tricuspid Endocarditis Due to Type I Pneumococcus Treated with Sulfapyridine. B. G. Fishkin and I. Pilot, Chicago.—p. 244.
Chemotherapeutic and Spontaneous Recoveries from Psychoses: Comparison as to Quality. J. Weinberg, H. H. Goldstein and J. V. Edlin, Chicago.—p. 266.
Acute Gingivostomatitis in Children. J. D. McKinney, Champaign.—p. 269.
Some Clinical Studies in Sterility in Men. L. M. Beilin, Chicago.—p. 272.
Psychosis Due to Exogenous Toxins—Marihuana. Marjorie Nesbitt, Chicago.—p. 278.
Modern Concepts of Obesity. S. C. Freed, Chicago.—p. 282.

Indiana State Medical Assn. Journal, Indianapolis

33:117-170 (March) 1940

- The National Health Bill. J. E. Murray, Butte, Mont.—p. 117.
Hospital Insurance and Medical Indemnity. P. Irving, New York.—p. 123.
Postgraduate Medical Education in Oklahoma. H. H. Turner, Oklahoma City.—p. 126.
The General Practitioner in Medical Practice. M. Fishbein, Chicago.—p. 128.
Diagnosis and Treatment of Peripheral Vascular Disease. E. V. Hahn and P. Merrell, Indianapolis.—p. 130.
Coronary Occlusion with Myocardial Infarction: Three Cases with Serial Electrocardiograms. R. E. Lyons Jr., Bloomington.—p. 134.

Journal of Allergy, St. Louis

11:225-332 (March) 1940

- Serologic Changes in Hay Fever Cases Treated Over a Period of Years. W. B. Sherman, A. Stull and R. A. Cooke, New York.—p. 225.
Studies in Absorption of Undigested Protein in Human Beings: VIII. Absorption from Rectum and Comparative Study of Absorption Following Oral, Duodenal and Rectal Administrations. I. Gray and M. Walzer, Brooklyn.—p. 245.
Relationships Between Foods as Shown by Skin Test in 1,000 Children: Some Characteristics of Skin Test. G. Piness, H. Miller, H. D. Carnahan, A. R. Altose and R. C. Hawes, Los Angeles.—p. 251.
Fallibility of Autopassive Transfer Test (Cowie). S. Marton, New York.—p. 266.
*Chronic Hyperplastic Sinusitis in Allergic Patients: Bacteriologic Study of 200 Operative Cases. R. C. Grove, New York, and J. B. Farrior, Ann Arbor, Mich.—p. 271.
Periarteritis Nodosa and Asthma: Case Report. A. Trasoff and M. Searf, Philadelphia.—p. 277.

Hyperplastic Sinusitis in Allergic Patients.—Grove and Farrior report a bacteriologic study of 200 operative cases of chronic hyperplastic sinusitis. All the patients had some allergic manifestation. Four fifths had asthma. The other allergies were hay fever, vasomotor rhinitis, urticaria, angioneurotic edema, eczema, vernal catarrh and migraine. One or more positive cutaneous tests of a moderate or marked degree were exhibited by 100 of the patients. They were not regarded as clinically significant, since in many the sensitization did not adequately explain the allergy, and the elimination did not effect any improvement in the asthma of many patients. The maxillary membranes were obtained by the Caldwell-Lue operation performed during a quiescent state. Bacteriologic examination was made of 365 washings from the maxillary and sphenoidal sinuses, 130 polyps and membranes removed from the ethmoidal and sphenoidal sinuses and 108 membranes removed from the maxillary sinuses. *Staphylococcus* was found in 60 per cent of the sinus washings. It was also the most frequent organism in the sinus membranes. Hemolytic streptococci were found more frequently in the antral membranes (25 per cent) than in the sinus washings (11.7 per cent) or in the ethmoidal and sphenoidal membranes (8.5 per cent). *Pneumococcus* and *Streptococcus viridans* were present much more frequently in the washings and in ethmoidal and sphenoidal membranes than in the antral membranes. The frequent finding of the hemolytic streptococcus in the antral membranes indicates its importance as an agent of infection. A clear return-flow from antral irrigation may be sterile, but a heavy growth of one

or more organisms may be cultured from membranes removed at operation. Sixty-four cases with a positive culture of the washings showed only two membranes with no growth, although special stains showed the presence of bacteria in the tissue. Of the 108 cultures of the antral membranes forty-seven showed a growth of an organism which had not been recovered in the cultures of the previous washings. This does not mean that certain organisms found in the washings were not present also in some of the antral membranes. The cultures of the membranes of the two antrums occasionally showed different organisms and often different from those in the ethmoidal membranes. Twenty per cent of the ethmoidal and sphenoidal membrane cultures and 12 per cent of the sinus washing cultures were negative. Cultures of the ethmoidal and sphenoidal membranes showed staphylococci more frequently than the cultures of the washings by 14 per cent. Staphylococci were present in pure culture in 150 of the 365 washings, in fifty-nine of the 130 ethmoidal and sphenoidal membranes and in nineteen of the 108 antral membranes. Hemolytic streptococci were present in pure culture in twenty-three of the 365 washings and in twenty-four of the 238 sinus membranes. More than one organism was cultured from ninety-eight of the 365 washings and from seventy-one of the 108 antral membranes. The fact that only 4 per cent of the antral membranes showed no growth indicates the importance of the sinus membrane as a focus of infection. The negative cultures are explained by the fact that earlier in their work mucous polyps were opened and cultured from within, whereas now they make a culture of the polyp sac and the underlying membranes which are the source of the infection. Of the antral membranes 95 per cent and of the ethmoidal and sphenoidal membranes 80 per cent showed bacteriologic evidence of infection. Streptococci of all types cultured from the 238 sinus membranes were found in 44 per cent. This is far below the 94.5 per cent that Kistner reported for his group of 400 sinus membrane cultures. It is possible that the membranes found in nonpurulent sinusitis, as Kistner describes it, may be more frequently infected with streptococci than the hyperplastic membranes found in their allergic cases. The figures for the occurrence of streptococci in the sinus washings compare favorably with those of many other investigators.

Journal of Immunology, Baltimore

38:159-250 (March) 1940

- Quantitative Aspects of Phagocytosis as Influenced by Number of Bacteria and Leukocytes. J. H. Hanks, Washington, D. C.—p. 159.
Studies on Measles: I. Use of Chorio-Allantois of Developing Chicken Embryo. G. Rake and M. F. Shaffer, New Brunswick, N. J.—p. 177.
Contact Reactions in Atopy: I. Contact Reactions to Silkworm in Atopic Subjects. M. Albert and M. Walzer, Brooklyn.—p. 201.
Antigenic Property of Insulin. P. Wasserman, R. H. Broth-Kahn and I. A. Mirsky, Cincinnati.—p. 213.
Electrophoretic Study of Antipneumococcus Horse Serums. D. H. Moore, J. van der Scheer and R. W. G. Wyckoff, Pearl River, N. Y.—p. 221.
Immunologic Cross Reactions of Type B Friedländer Bacillus in Type 2 Antipneumococcus Horse and Rabbit Serum. P. B. Beeson and W. F. Goebel, New York.—p. 231.
Cutaneous Reactivity of Guinea Pigs to Gum Arabic. R. M. Seideman, Boston.—p. 237.

Journal of Lab. and Clinical Medicine, St. Louis

25:557-668 (March) 1940. Partial Index

- Action of Ouabain on Splanchnic Circulation in Dog. J. E. Nadler, A. R. Berger and J. Ballinger, New York.—p. 557.
Oral Pollen Therapy. S. C. Schwartz, El Paso, Texas.—p. 566.
Traumatic Epithelial Cysts. T. G. Cogswell and R. H. Goodale, Worcester, Mass.—p. 576.
Studies in Alimentary Canal of Man: X. Roentgenographic Study of Normal Pylorus and Duodenal Cap. J. M. Painter, T. W. Todd and Wilhelmine Kuenzel, Cleveland.—p. 581.
Management of Diabetes as Controlled by Tests of Acetone in Expired Air. A. P. Briggs, Augusta, Ga.—p. 603.
Physiologic Activity of Cigarette Smoke Solutions as Related to Their Nicotine Content. H. B. Haag, Richmond, Va.—p. 610.
Estimation of Serum Phosphatase Activity with Disodium Phenyl Phosphate. D. M. Greenberg, S. P. Lucia and H. G. Weitzman, San Francisco.—p. 634.
Comparative Study of Blood and Spinal Fluid by Kahn, Kline and Laughlen Tests. L. E. Taschner, Medical Lake, Wash.—p. 642.
Triple Sugar-Ferrous Sulfate Medium for Use in Identification of Enteric Organisms. S. E. Sulkin and J. C. Willett, St. Louis.—p. 649.
Bedside Test for Sulfapyridine. H. D. Ratish and J. G. M. Bellizzi, New York.—p. 654.

Journal of Pediatrics, St. Louis

16:275-408 (March) 1940

- Variations in Concentration of Ascorbic Acid in Plasma of the Newborn Infant. R. L. Mindlin, Boston.—p. 275.
- Vitamin A Status of Children as Determined by Dark Adaptation. J. M. Lewis and C. Haig, New York.—p. 285.
- Neurologic Sequelae of Perinatal Asphyxia. F. Schreiber, Detroit.—p. 297.
- *Heart Murmurs in Newborn Infants. R. A. Lyon, Louise W. Rau and J. W. Stirling, Cincinnati.—p. 310.
- Ventricular Dilatation in Spina Bifida. B. Shapiro and V. G. Tosti, Jamaica, N. Y.—p. 318.
- *Prophylaxis and Treatment of Poliomyelitis with Neoprontosil. W. M. Rhett, Charleston, S. C.—p. 326.
- Spontaneous Erections in Early Childhood. J. H. Conn and L. Kanner, Baltimore.—p. 337.
- Treatment of Acute Alcoholism with Insulin: Report of Case. H. M. Taylor and A. R. Cross, Durham, N. C.—p. 341.
- Treatment of Tetany of Newborn Infant with Dihydrochysterol. A. Blossom, Houston, Texas.—p. 344.
- Pneumococci Meningitis: Report of Sulfapyridine Reaction Involving Mucous Membranes. Mary L. Moore and R. P. Forbes, Denver.—p. 347.
- Sarcoma of Vulva in a Seven Month Old Infant. H. Hauptman and F. J. Taussig, St. Louis.—p. 350.
- Adapter for Urine Specimen Tubes. M. Shinn and H. L. Wunderly, Pittsburgh.—p. 356.
- Psychologic Care of the Preschool Child. Ruth Morris Bakwin and H. Bakwin, New York.—p. 357.

Heart Murmurs in Newborn Infants.—Lyon and his associates encountered 147 newborn infants, among a total of 7,673, with heart murmurs. They were able to follow the course of ninety-two in later life. Heart murmurs were somewhat more frequent in the Negro infants than in the white infants. The seventy-six white infants constituted 1.6 per cent of a total number of white full term babies, while the seventy-one Negro infants with murmurs constituted 2.4 per cent of the total number of Negro infants. There were seventy boys (1.8 per cent) and seventy-seven girls (2 per cent). These infants were classified according to the month of their birth, and although there was a slight increase in the incidence in the fall and winter months the differences were not great. Further analysis would be necessary to demonstrate that the different seasons with their variations in diet and vitamin intake had any influence on the incidence of murmurs. The factor of birth weight and its influence on murmurs was not borne out, although they were somewhat more frequent in infants weighing from 9 to 10 pounds (about 4,000 to 4,500 Gm.) than in other weight groups. The incidence of murmurs in the infants of the entire group of white mothers was 1.9 per cent, and of mothers with positive serologic reactions only 1.3 per cent. The respective figures for infants of Negro mothers were 3.1 and 2.6 per cent. Syphilis apparently had no part in the causation of cardiac murmurs in newborn infants. Almost all the murmurs heard in this series were systolic. In only two instances was there a diastolic murmur associated with a systolic murmur. The murmurs were blowing in quality in about half of the group, and in the other half they were rough or musical. The majority were audible over the entire precordium and were usually loudest at the apex or in the region of the third costal interspace a little to the left of the sternum. In forty-one of eighty-four infants observed for a week a murmur was heard during the first twenty-four hours of life but had disappeared by the third to sixth day; in twenty the murmurs were heard on both the first and sixth days of life and in the remaining twenty-three the murmur was not heard on the first day but only on the fifth or sixth day. Of the ninety-two infants followed after dismissal, four died between four days and nine months after birth. Of the remaining eighty-eight, thirty-one were seen only once, thirty-six from two to ten times and twenty-one on more than ten occasions. Practically all these infants were examined about six months after dismissal and forty-five were followed until they were more than 1 year of age. The murmurs had persisted in fourteen instances; in three a patency of the interventricular septum was suspected but in the others no definite diagnosis could be made. Mild cyanosis was observed in two infants. The hearts of the remaining seventy-four infants seemed normal except for inconstant systolic murmur in two instances and extrasystoles in one other. No distinctive signs occurred during the first week of life to indicate which murmurs would persist for longer periods. The quality of the murmurs and their location during the first week were practically the same in the infants with permanent murmurs as in those with temporary murmurs.

Prophylaxis and Treatment of Poliomyelitis with Azosulfamide.—During an epidemic of poliomyelitis Rhett gave azosulfamide as a prophylactic to 440 acutely ill children. The daily dose was 0.065 Gm. per pound of body weight. In one of these children a transient paralysis developed on the fifth day of illness. The mother of this child did not keep up the maintenance dose of the drug. Symptoms subsided when full dosage was resumed, and paralysis was recovered from during the three weeks of quarantine. Meningeal symptoms developed on the fifth day of illness in two other children under similar circumstances; that is, noncontinuance of the maintenance dose. These symptoms subsided without paralysis when the full dosage of the drug was once more administered. In fourteen cases of poliomyelitis the drug was given in the preparalytic stage. Paralysis developed in only one of these. Eight children with a clinical diagnosis of meningeal involvement of poliomyelitis recovered under azosulfamide medication without paralysis. These cases are not reported as positive as they were not confirmed by spinal fluid examination. Eleven patients with paralytic involvement were treated with azosulfamide. Toxic symptoms subsided in from twenty-four to forty-eight hours, and there was no progression in paralytic involvement after an adequate dosage of the drug was reached and maintained for from twenty-four to forty-eight hours. There were no deaths in the acute phase of the disease. There were two patients presenting acute fulminating onset of the disease with involvement of all extremities and respiratory musculature. The respirator was necessary. One of these patients died two months later while convalescing and recovering some respiratory function. Death was caused apparently by an attack of asthma, from which she had suffered for several years.

Laryngoscope, St. Louis

50:89-200 (Feb.) 1940

- Diseases of Larynx: Material Abstracted During the Year 1939. H. B. Orton, Newark, N. J.—p. 89.
- New Concepts of Functions of Tongue. M. A. Goldstein, St. Louis.—p. 164.
- Practical Apparatus for Point Irrigation. E. R. Hargett, Springfield, Ohio.—p. 189.
- Experimental Evidence of Gonadotropic Hormone in Nasal and Sinus Mucous Membranes. A. A. Eggston, New York.—p. 191.
- Lateral Sinus Thrombosis: Unusual Course. L. Hubert, New York.—p. 195.
- Acute Mastoiditis Masked by Sulfanilamide. S. Rosen, New York.—p. 198.

50:201-276 (March) 1940

- Allergy in Otorhinolaryngology and Ophthalmology: Review of Recent Current Literature. F. K. Hansel, St. Louis.—p. 201.
- Studies on Anatomy and Physiology of Tongue. Jacqueline Keaster, St. Louis.—p. 222.
- Inherent Accuracy of Series of Repeated Clinical Audiograms. E. G. Witting and W. Hughson, Abington, Pa.—p. 259.
- Calculus in Submaxillary Gland and Wharton's Duct. G. B. Gilmore, New York.—p. 270.

Minnesota Medicine, St. Paul

23:149-220 (March) 1940

- Cesarean Section: Brief Historical and Technical Review. L. W. Barry, St. Paul.—p. 149.
- *Further Results in Treatment of Acute Poliomyelitis with Antistreptococcus Serum (1928-1937). E. C. Rosenow, Rochester.—p. 161.
- Recent Progress in Otology. H. Newhart, Minneapolis.—p. 165.
- Management of Postoperative Intestinal Obstruction Complicated by Hemorrhage on the Basis of Prothrombin Deficiency. C. F. Dixon and R. O. Gregg, Rochester.—p. 169.
- Allergy in General Practice. H. J. Roemer, Winona.—p. 173.

Antistreptococcus Serum in Acute Poliomyelitis.—Rosenow compares the results obtained in the treatment of 221 patients with acute poliomyelitis receiving antistreptococcus serum since 1928 under his supervision or under the supervision of physicians to whom he sent the serum and the effects of the disease among 116 similar patients living under comparable conditions who did not receive the serum. The initial symptoms in the group in which serum was administered were somewhat more severe than the initial symptoms in the control group. The results are contrasted on the basis of mortality and residual paralysis. Of the patients who received the serum ten died, whereas twenty-three of the control patients died. Of the 211 patients who received serum and who survived 161 recovered without having residual paralysis, twenty-nine had slight paralysis, fourteen had moderate residual paralysis and only seven

(3.3 per cent) had severe residual paralysis. Of the ninety-three control patients who survived, only thirty-four did not have residual paralysis, ten had slight paralysis, seventeen had moderate paralysis and thirty-two (34.4 per cent) severe paralysis. The number of injections and the total amount of serum administered were recorded for 188 patients; a total of 508 injections was administered, representing 7,670 cc., or an average of about 15 cc. at each injection, and 40 cc. for each patient. The amount of serum administered per patient ranged from 10 to 200 cc. Only one person had an immediate severe reaction to the serum, three a moderate reaction, three a slight reaction and 146 no immediate reaction. Six patients had severe late reactions, fifteen moderate reactions, twelve slight reactions and 120 no late reaction. Of the ten patients who died in the serum group, all had marked paralysis before the serum was administered. Of the seven patients to whom serum was administered and who recovered with severe residual paralysis, five had severe paralysis before treatment with serum was instituted and two had moderate paralysis. In only one instance was the first injection made as early as the second day after the onset of symptoms. Of the twenty-nine patients who had slight residual paralysis after treatment, twenty-one had a severe degree of paralysis and two did not have any paralysis at the time of the first injection of serum. Of the 161 patients who eventually recovered without residual paralysis 106 did not have paralysis, eight had slight paralysis, six had moderate paralysis and forty-one had severe paralysis at the time of the first injection of serum. The degree of residual paralysis was in direct proportion to the duration of the disease before the administration of the serum. Thus, among those patients who recovered with severe residual paralysis the average duration of the disease was 4.3 days, among those with moderate residual paralysis it was 4.7 days, among those with slight residual paralysis it was 3.5 days and among those with no residual paralysis it was 2.3 days. The much lower mortality (4.5 per cent) and incidence of severe residual paralysis (3.3 per cent) of the patients given serum in comparison with the mortality (19.8 per cent) and incidence (34.4 per cent) of severe residual paralysis of the controls seem directly attributable to the action of the anti-streptococcus serum. Restless, nervous children often fell asleep soon after receiving the first injection of serum. Headache and pain in the involved extremity or part often were lessened or relieved. The temperature, especially among patients in the preparalytic stages, rapidly fell to normal, usually after an initial transient elevation. Progressive paralysis often was seemingly arrested. Restoration of muscle function was more rapid among patients who received serum. These favorable results, obtained since 1928, are in strict accord with those previously reported.

New England Journal of Medicine, Boston

222:471-516 (March 21) 1940

- Medical Education. A. L. Lowell, Boston.—p. 470.
Alternating Tremor (Paralysis Agitans) and Athetosis: Recent Advances in Diagnosis and Treatment. T. J. Putnam, New York.—p. 473.
The Quality of Medicine. N. B. Van Etten, New York.—p. 476.
Carcinoma of Uterine Cervix: Results of Treatment Through 1933, Showing the Value of Supplementary X-Radiation. G. Van S. Smith and F. A. Pemberton, Brookline, Mass.—p. 481.
Esophagobronchial Fistula: Result of Foreign Body: Report of Case. J. A. Murtagh and M. D. Tyson, Hanover, N. H.—p. 494.
Dermatology. P. C. Baird Jr., Boston.—p. 496.

222:517-562 (March 28) 1940

- The Warrens of New England and Their Friends. H. Stalker, Grosse Pointe, Mich.—p. 517.
Present Day Medical Economics: Informal Discussion. R. Fitz, Boston.—p. 530.
Diagnosis and Treatment of Sigmoidal Polyps. R. B. Cattell and N. W. Swinton, Boston.—p. 535.
*Treatment of Rheumatoid Arthritis with Sulfur: Critical Evaluation. N. R. Abrams and W. Bauer, Boston.—p. 541.
Surgery of Sympathetic Nervous System, with Particular Reference to Vascular Disease. R. H. Smithwick, Boston.—p. 546.

Treatment of Rheumatoid Arthritis with Sulfur.—

According to Abrams and Bauer the evidence that the sulfur content of articular cartilage is reduced in patients with rheumatoid arthritis is meager and not well established. They point out the difficulties encountered in evaluating the results of therapy in rheumatoid arthritis and stress the precautions and the necessity of a rigid control in accurate estimation. In their series of patients (twelve ambulatory and two hospitalized) all

but two had been observed for periods varying from one to five years before sulfur therapy was instituted. The two exceptions had been on an established basic regimen for months prior to hospitalization without obtaining any appreciable effect. The same basic regimen of a high vitamin, high caloric diet, added vitamins in the form of cod liver oil and yeast, daily physical therapy and constant rations of acetylsalicylic acid, allowed during the pretreatment period, was continued during the sulfur therapy and post-treatment periods. Two of these patients received two series of injections. Colloidal sulfur was given intravenously to twelve patients (fourteen courses) and intramuscularly to two. Ten patients received a total of from 310 to 370 mg. of colloidal sulfur over a period of from six to eight weeks. In order to establish that larger doses (1,000 mg. or more) were no more efficacious than the previously mentioned smaller ones, three patients were given 1,080, 1,200 and 2,980 mg. respectively. Twenty mg. was administered as an initial dose, except for two of the patients. Subsequent injections of 30 mg. each were given to all patients except those receiving the larger doses. In the latter 50 mg. was given as a second dose and 100 mg. subsequently. The results indicate that colloidal sulfur, even when administered in large doses, does not alter the course of rheumatoid arthritis. While the number of cases so treated is small, the uniformity of the results renders them significant. Colloidal sulfur therapy in the authors' opinion is but another antirheumatic remedy which can be dispensed with with considerable saving of expense to the patient. The data presented here are in agreement with the action taken by the Council on Pharmacy and Chemistry of the American Medical Association, which has been unwilling to include in its list of new and nonofficial remedies any of the colloidal sulfur preparations now on the market.

New Jersey Medical Society Journal, Trenton

37:95-140 (March) 1940

- *Hormone Treatment of Senile Vulvovaginitis: Report of Fifty Cases. Rita S. Finkler and Zelda I. Marks, Newark.—p. 99.
Simplified Method of Intravenous Injection. A. S. Goldsmith, North Bergen.—p. 106.
Treatment of Intestinal Obstruction with Double-Barreled Intestinal Tube. W. O. Abbott, Philadelphia.—p. 108.
Staphylococcal Septicemia Which Recovered by Use of Sulfapyridine: Case. P. M. Pegau and C. C. Reed, Woodbury.—p. 111.

37:141-188 (April) 1940

- Roentgen Study of Urinary Lithiasis. J. J. Szymanski, Passaic.—p. 145.
Regional Ileitis: Summary and Case Report. W. A. Leff, Newark.—p. 150.
Study of Neonatal Deaths in Philadelphia During 1938. R. M. Tyson, Philadelphia.—p. 154.

Endocrine Treatment of Senile Vulvovaginitis.—Finkler and Marks administered estrogen to fifty patients presenting symptoms of senile vulvovaginitis. The symptoms consisted of pruritus vulvae, pruritus ani, and dyspareunia due to partial stenosis of the introitus and sclerosing changes in the vulva and perineum. Most of these patients presented in addition to the local symptoms varying degrees of vasomotor and mental disturbances. The estrogen preparations were administered by injection, inunction of the vulvovaginal area, suppository and/or orally. For the purpose of comparison, some of the patients were shifted from one type of therapy to another when, after a period of rest, regression had occurred. The effect of the therapy was studied and checked by bio-assays, vaginal smear and endometrial and vaginal biopsy. The selection of the type of therapy to be used varies from patient to patient and depends on the severity of the symptoms, the local condition present, whether local or general symptoms predominate and the cooperation of the patient. Varying degrees of improvement in local and general symptoms resulted from all four routes of administration of the estrogen. The greatest relief from general symptoms was obtained from intramuscular injections. Oral medication used in adequate potency gave similar relief. Amelioration of symptoms was achieved in most of the fifty patients. Incomplete response or failure was observed in twelve patients who had complicating medical conditions such as diabetes, eczema, extensive leukoplakia, atrophy due to radiation therapy and vulvectomy for a preexisting kraurosis vulvae, hypertrophic pathologic changes in the vulva, psoriasis and psychoneurosis.

Northwest Medicine, Seattle

39:81-118 (March) 1940

- Icterus Gravis Neonatorum. J. B. Bilderback and M. L. Bridgeman, Portland, Ore.—p. 85.
Otitic Intracranial Complications: Procedures in Diagnosis. O. M. Rott, Spokane, Wash.—p. 92.
Onycholysis: Report of Case. D. D. McRoberts, Lewiston, Idaho.—p. 95.
Chronic Sepsis and Systemic Disease. M. J. Fuendeling, Twin Falls, Idaho.—p. 97.
Peptic Ulcer and Pellagra: Report of Three Surgical Cases. D. Metheny, Mary W. Northrop and Helen Kantner Brown, Seattle.—p. 101.
The Sprue Syndrome. A. H. Ross, Eugene, Ore.—p. 103.

Ohio State Medical Journal, Columbus

36:241-348 (March) 1940

- *Comparative Use of Sulfapyridine and Specific Serum in Pneumococcal Pneumonia. J. M. Rueggesser, M. Hamburger and Sarah L. Cockrell, Cincinnati.—p. 257.
Stricture of Rectum (Lymphopathia Venerea). A. G. Carmel, Cincinnati.—p. 262.
Renal Infarct: Report of Case. A. D. Vogelsang, Toledo.—p. 269.
Thrombo-Angiitis Obliterans. F. A. LeFevre, Cleveland.—p. 272.
Turricephaly, Turmschadel or Oxycephaly with Craniosynostosis. S. J. Webster and J. E. Morgan, Cleveland.—p. 277.
Incidence of Auricular Fibrillation in Mitral Stenosis with Congestive Failure. L. Walzer, Cleveland.—p. 281.
Allergy as Factor in General Medicine. O. Berghausen, Cincinnati.—p. 284.
Biologic Assay of Thyroid Activity. F. E. Hamilton, Columbus.—p. 286.
Evaluation of Obstetric and Gynecologic Anesthesia. R. J. Whitacre and A. J. Fisher, Cleveland.—p. 290.

Sulfapyridine and Specific Serum in Pneumonia.—Rueggesser and his associates compared the efficacy of sulfapyridine with type specific antipneumococcus serum. The alternate case method was employed for a period of approximately six months. Only those patients who had had pneumonia for less than 120 hours were included in the study. Types I to VIII were alternated within the individual types; the higher types IX to XXXII were alternated without regard to type. The dosage of serum was from 100,000 to 200,000 units for the patients without bacteremia and roughly double these amounts for those with bacteremia. Patients receiving sulfapyridine were given 2 Gm. of the drug immediately and 1 Gm. every four hours night and day. The drug was administered by mouth. If vomiting occurred within thirty minutes the dose was repeated. There were twenty-nine men and sixteen women in the serum treated group and twenty-nine men and twenty women in the group receiving sulfapyridine. The serum treated group contained more patients in whom the pulmonary lesion on admission was limited to one lobe. In each group seven patients had bacteremia; of these, one of the serum treated group and two of those receiving the drug died. A symptom or symptoms which presumably represented clinical serum sickness developed in twelve patients. One patient showed no response to serum and had a spontaneous crisis four days later. Empyema developed in two patients subsequent to clinical improvement after serum therapy; both required surgical drainage. The average dose of sulfapyridine for the entire series was about 33 Gm. Ingestion of the drug was followed in slightly more than half of the patients by nausea and/or vomiting. In no instance was therapy interrupted because of vomiting. Two patients showed sharp decrease in the number of circulating leukocytes, with a return to normal after discontinuance of the drug. It was observed in three other patients that a relative leukopenia was not a contraindication to this form of chemotherapy. One patient showed a rapid decrease in his erythrocyte count during drug therapy; iron therapy and discontinuance of the drug was followed promptly by a restoration to normal. The most dramatic effect of sulfapyridine therapy was the critical drop in temperature, which occurred usually within the first eighteen hours of therapy. Unlike spontaneous or serum induced crises, this drop of temperature was rarely associated with marked clinical improvement. There was no apparent relation between the blood sulfapyridine level and decrease in temperature; in several instances it actually occurred when only a trace of the drug could be demonstrated in the blood. It apparently cleared the blood stream of seven of the eight patients who had bacteremia. Empyema developed in only one patient in this group and his pleural cavity was sterilized without resort to surgical intervention. Sterilization took place

by a gradual reduction in the number of encapsulated organisms rather than by a decapsulation of the organism. The authors feel that neither specific serum nor sulfapyridine is entitled to an exclusive position in the therapy of pneumococcal disease of the lungs. There is no apparent incompatibility between the two agents and it is suggested that the best results can be obtained by combining the two. There were two fatalities among the forty-five patients treated with specific antipneumococcus serum and six among the forty-nine patients treated with sulfapyridine.

Oklahoma State Medical Assn. Journal, Oklahoma City

33:1-58 (March) 1940

- Heterophoria. C. H. Haralson, Tulsa.—p. 1.
Peripheral Vascular Diseases: Diagnosis and Treatment. J. F. Hamilton, Memphis, Tenn.—p. 3.
Acute Infective Laryngotracheobronchitis. G. R. Felts, Oklahoma City.—p. 9.
Some Problems in Syphilis Control in Oklahoma. D. V. Hudson, Tulsa.—p. 12.
Tularemia. G. R. Booth, LeFlore.—p. 15.

Pennsylvania Medical Journal, Harrisburg

43:753-896 (March) 1940

- Management of Scarlet Fever and Its Complications. J. A. Toomey, Cleveland.—p. 769.
Clinical Pathologist and Acute Appendicitis. F. W. Konzelmann, Philadelphia.—p. 775.
Errors of Omission and Commission in Acute Appendicitis. J. P. Replegie, Johnstown.—p. 778.
*Statistical Study of 5,977 Cases of Pneumonia, with Mortality Statistics of 9,162 Serum and Sulfapyridine Treated Cases Collected from Recent Literature. C. P. Faller, K. E. Quicke and C. W. Smith, Harrisburg.—p. 789.
Clinical Résumé of Cervical Lymph Gland Disease. G. J. Kastlin, Pittsburgh.—p. 801.
Pancreatic Islet Tumors with Hypoglycemia. D. P. Greenlee, Pittsburgh.—p. 809.
Status of Geriatrics. J. T. Freeman, Philadelphia.—p. 813.
Management of the Prostatic Patient. P. P. Maycock and J. B. Purcell, Wilkes-Barre.—p. 817.
Acute Fulminating Frontothymoiditis. T. B. McCollough, Pittsburgh.—p. 821.

Statistical Study of Pneumonia.—Faller and his co-workers obtained through questionnaires fairly complete data on 5,977 cases of pneumonia occurring in Pennsylvania from January 1938 to July 1939. The gross mortality was 22.1 per cent, or 1,321 deaths. The highest incidence was during the winter and early spring months. A relatively high incidence was demonstrated in infancy and early childhood, with a relatively low incidence in middle life and a greater prevalence of both lobar pneumonia and bronchopneumonia in later life. The incidence did not differ markedly for the two sexes, but there was a greater incidence of both lobar pneumonia and bronchopneumonia in male than in female patients. The incidence of the ten most common types in order of frequency was I, II, III, VII, VIII, V, IV, XIV, VI and XIX. There was a tendency of the higher types of pneumonia to be more frequent in childhood. The mortality for pneumonia patients treated by non-specific methods was 30.83 per cent and 10.69 per cent for those treated with sulfapyridine. The mortality for patients treated with specific antipneumococcus serum was 17.84 per cent. The mortality for patients treated with both serum and sulfapyridine was higher (14.67 per cent) than for those treated with sulfapyridine alone. The probable explanation for this is that sulfapyridine therapy is used too long before serum is begun. If a beneficial response is to be obtained with sulfapyridine, it should be evident within twenty-four hours. The mortality increased with each day for which specific serum treatment was delayed. The lowest mortality rates were with sulfapyridine, and with sulfapyridine with serum. In the cases in which serum and sulfapyridine were used on the first day of the disease no deaths occurred. Serum used after the third day, either with or without sulfapyridine, did not lower the mortality. A lamentably small number of blood cultures were performed among the pneumonia patients throughout the state as a whole. Because of the prognostic significance of a positive blood culture and its guidance as to the dosage of serum, blood cultures should be performed in a routine manner. Otitis media and empyema accounted for the majority of complications in children. Empyema was the most common complication in adults, with a mor-

fatality of 22.4 per cent. Only one case of granulocytopenia was reported. It was fatal and occurred in a sulfapyridine-treated case. From a survey of the recent literature on pneumonia the authors collected 5,554 additional serum-treated cases and 3,608 additional sulfapyridine-treated cases. The mortality for the serum-treated cases was 15.79 and for the sulfapyridine-treated cases 6.26 per cent. Mortality for the combined 6,462 serum-treated cases was 16.07 per cent and for the 4,739 sulfapyridine-treated cases 7.32 per cent.

Public Health Reports, Washington, D. C.

55:441-484 (March 15) 1940

- The National Health Survey: Some General Findings as to Disease, Accidents and Impairments in Urban Areas. R. H. Britten, S. D. Collins and J. S. Fitzgerald.—p. 444.
Sanitary Units on Ships: Organization and Operation. G. C. Sherrard.—p. 470.
Skin Hazards in American Industry: Part III. Review. L. Schwartz.—p. 473.

Review of Gastroenterology, New York

7:103-202 (March-April) 1940

- The Problem of Peptic Ulcer. J. J. Hepburn, Boston.—p. 103.
Gastrointestinal Disturbances Due to Bacterial Toxemia from Focal Infection. M. Solis-Cohen, Philadelphia.—p. 112.
Congenital Bands and Adhesions: Symptomatology and Treatment. C. W. Strickler, Atlanta, Ga.—p. 124.
Temperature of Gastrointestinal Tract and Effect Thereon of Hot and Cold Drinks and of Physical Therapeutic Agents. H. M. Eberhard, Philadelphia.—p. 133.
Complications of Diaphragmatic Hernia. I. R. Jankelson, Boston, and S. Morein, Providence, R. I.—p. 134.
Lymphogranulomatous Strictures of Rectum: Treatment by Diathermy. H. Martz, Birmingham, Ala., and M. N. Foote, Brooklyn.—p. 144.
Growth of Carcinoma of Anus and Rectum. C. J. Druceck, Chicago.—p. 154.
Diagnosis of Proctologic Complaints in Office Practice. A. L. Reich, Newark, N. J.—p. 158.
Interesting Gastrointestinal Cases with Roentgenologic Findings. T. S. Heineken, Bloomfield, N. J.—p. 163.
Xanthoma Diabeticorum. C. W. Finnelly, Boston.—p. 166.
Control of Hemorrhage in Patients Operated on for Obstructive Jaundice. J. E. Rhoads and I. S. Ravdin, Philadelphia.—p. 169.
Surgical Management of Acute Cholecystitis. J. F. McCloskey and J. A. Lehman, Philadelphia.—p. 176.
Evaluation of Liver Function Tests. J. Gerendasy, Elizabeth, N. J.—p. 183.
Study of Etiologic Relation of Ingestion of Infected Pig Meat Products to Pathogenesis of Catarrhal Jaundice. M. Perlmuter, Brooklyn.—p. 188.

Southern Medical Journal, Birmingham, Ala.

33:229-336 (March) 1940. Partial Index

- Abandonment of Ligations Preliminary to Thyroidectomy. W. Bartlett Jr., St. Louis.—p. 229.
Extensive Radical Resection for Malignant Disease of Stomach. C. J. Hunt, Kansas City, Mo.—p. 234.
Primary Carcinoma of Jejunum. W. R. Brookshier, Fort Smith, Ark.—p. 238.
*Anemia of the Newborn. H. L. Dwyer and F. C. Neff, Kansas City, Mo.—p. 246.
*Malarial Therapy in Dementia Paralytica: Statistical and Sociologic Study of 300 Cases Treated with Tertian or Quartan Malaria and Tryparsamide Over Seven Year Period. J. R. S. Mays, J. W. Oden and C. G. Cox, Milledgeville, Ga.—p. 255.
Muscular Atrophy and Weakness in Thyrotoxicosis (Thyrotoxic Myopathy; Exophthalmic Ophthalmoplegia). H. J. Morgan and R. H. Williams, Nashville, Tenn.—p. 261.
Tumors of Glomus (Glomangiomas or Angiomyoneuromas). R. W. Fowlkes and A. W. Pepple, Richmond, Va.—p. 269.
Use of Beta Ray of Radium Applicator: Description of Method and Results Obtained in Superficial Lesions of Eye. C. F. Burnam and W. Neill Jr., Baltimore.—p. 279.
Radium Needles in Treatment of Carcinoma of Cervix and Vagina. A. N. Arneson and H. Hauptman, St. Louis.—p. 286.
Some General Principles in Bedside Diagnosis of Heart Disease. T. R. Harrison, Nashville, Tenn.—p. 308.
Clinical Experience with Mercurial Diuretics in Prevention of Acute Paroxysmal Dyspnea. E. F. Horine, Louisville, Ky.—p. 315.
Comparison of Streptococcus Pyogenes and Streptococcus Epidemicus. Alice C. Evans, Washington, D. C.—p. 318.
Diphtheria in Tennessee: Administrative Aspects in Its Control. W. V. Sanford, Ruth R. Puffer, C. B. Tucker and A. E. Hardison, Nashville, Tenn.—p. 321.
Anemia of the Newborn.—Dwyer and Neff cite the cases of two newborn infants with anemia associated with erythroblastosis and icterus, in which blood transfusion was followed promptly by a return to normal. Another newborn infant with anemia, in whom erythroblastosis and icterus were not present, did not respond to repeated transfusions. However, the use of liver extract hypodermically was followed by the appearance of

reticulocytes and immature granulocytes immediately, with a gradual return to normal blood values. This suggests that erythroblastic hemolytic anemia of the newborn is differentiated from the nonerythroblastic type not only clinically, hematologically and pathologically but possibly also by the response to blood transfusions. The case of a fourth infant with a severe grade of anemia of nearly four years duration, which was refractive to transfusions as well as liver and iron therapy, is reported. The anemia began in the newborn period and, unlike the majority of cases of aplastic anemia, the aplasia was confined to the erythropoietic organs. Postmortem observations were not characteristic of aplastic anemia. In a rather loose grouping of these rare forms of anemia in early life it is regarded as a case of hypoplastic-aplastic anemia of the newborn.

Malarial Therapy in Dementia Paralytica.—In the past seven years 304 cases have been treated with tertian malaria at the Milledgeville State Hospital as a routine treatment for neurosyphilis, according to Mays and his associates. Nine months ago a strain of quartan malaria was introduced for cases which were immune to the tertian strain and for cases in which the serums were still strongly positive after treatment with tertian malaria. Twenty-two of the 304 patients receiving the tertian strain were later treated with the quartan strain of malaria; fifteen other patients were also treated with quartan malaria. Their experience with the two types of malaria suggested that the quartan malaria is preferable to the tertian malaria because of its higher improvement rate, its lower death rate and its more prolonged temperature elevation. The most favorable reaction was obtained in the grandiose-excited type of patient and the least favorable outlook for recovery was in the simple deteriorated type. It appears that the severity of the paroxysms, rather than their number, is the therapeutic desideratum. In debilitated patients it is frequently advisable to precede malarial therapy with a course of tryparsamide and thiobismol. The death rate can be materially lowered by careful observation and proper symptomatic treatment of the patient during the acute and postmalarial period. During the febrile periods the patient should receive fruit juices and sodium chloride. Anemia and cachexia will improve with tube feeding, ferrous sulfate administration and repeated small transfusions of whole blood. Psychotic symptoms, such as hallucinations, grandiose or paranoid delusions and hypochondria, frequently show an exacerbation during the period of acute malaria, but these clear up readily with the administration of quinine. Convulsions appearing in cases of dementia paralytica tend to decrease the recovery rate and to increase the mortality rate. There was no significant improvement in the neurologic symptoms following malarial therapy.

Southern Surgeon, Atlanta, Ga.

9:223-300 (April) 1940

- Problems in Treatment of Burns: Liver Necrosis as a Lethal Factor. R. D. McClure and C. R. Lam, Detroit.—p. 223.
Importance of Early Diagnosis of Urologic Affections. E. G. Ballenger, H. P. McDonald and R. C. Coleman Jr., Atlanta, Ga.—p. 235.
Dermoid Cysts Complicating Pregnancy: Report of Case of Bilateral Dermoid Cysts with Torsion of One Complicating a Pregnancy Which Terminated Normally in Spite of Excision of Both Ovaries. L. S. King, Philippi, W. Va.—p. 241.
Rationale of Splenectomy in Treatment of Certain Anemias. G. M. Curtis, Columbus, Ohio.—p. 249.
Complete Indirect Inguinal Hernias: Study of 305 Hernias and Repairs. H. J. Shelley, Fort Worth, Texas.—p. 257.
Relationship of Unilateral Kidney Disease to Hypertension: Report of Case Cured by Nephrectomy. N. F. Ockerblad, Kansas City, Mo.—p. 269.

Southwestern Medicine, El Paso, Texas

24:81-114 (March) 1940

- Pneumonia: Statistical Survey for 1939 for St. Joseph's Hospital, Sulfapyridine and Early Diagnosis. L. R. Kober, S. R. Caniglia and K. Thayer, Phoenix, Ariz.—p. 81.
Management of Surgical Lesions of Biliary Tract. G. B. Kent and K. C. Sawyer, Denver.—p. 86.
Unusual Positions and Conditions of Vermiform Appendix. D. L. Secrist, Tucson, Ariz.—p. 88.
Management of Diabetes. P. Corr, Riverside, Calif.—p. 92.
Rehabilitation of Congenital Spastic Paralysis (Little's Disease). W. C. Curphey, Las Vegas, N. M.—p. 94.
Mastoid Infections. W. E. Vandevere and M. P. Spearman, El Paso, Texas.—p. 97.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

15:1-64 (March) 1940

Soya Bean Flour with Dried Milk: Cheap and Efficient Substitute for Breast Milk. Helen M. M. Mackay.—p. 1.
The Schilling Hemogram in Otitis Media and Mastoiditis of Infancy. E. C. R. Couper.—p. 27.

*Stomatitis in Childhood. C. G. Parsons.—p. 43.
Staphylococcus Aureus Infection of Long Bones in the Newborn. Jean M. Cass.—p. 55.

Stomatitis in Childhood.—Among 115 children suffering from stomatitis Parsons found that it was not always possible to classify the cases into general types: aphthous, catarrhal, mycotic or thrush, ulcerative, gangrenous or noma and symptomatic stomatitis. Generally the clinical and bacteriologic features of the stomatitis of children less than 2 years of age differed from that of older children. Sixty-seven of the 115 children were girls. The youngest patient was 13 days old and the oldest 11 years. More than half of the cases occurred in children less than 2 years of age and four fifths before the third birthday. The incidence of the disease diminished progressively as age increased. The most common symptoms were sore mouth, anorexia and malaise. Diarrhea was common in children of the young group, constipation in the older children. Vomiting was frequent in all. Pyrexia was considerably higher in the older group. Toxic, grayish pallor without obvious anemia was an exceedingly common symptom. Stomatitis occurred in the young artificially fed children or those who sucked dummies. It was usually due to thrush, even when aphthous ulceration was the chief sign. There was little or no odor, and the cervical glands were not involved. Gastro-enteritis was an extremely serious complication. There was no distinct division between this type of stomatitis and the one occurring in older children. The stomatitis of older children was of the Vincent type but was often complicated by aphthous ulceration, while inflammation, offensive odor and glandular enlargement were the rule. The organisms concerned were anaerobes, but an underlying organism of unknown character, possibly a virus, was probably the cause, and aphthous ulceration merely a symptom. An absolute and relative monocytosis was found in many cases of stomatitis in all age groups. It was quite characteristic but the reason for its occurrence is unknown. Various forms of treatment were tried but local application of either 1 per cent aqueous solution of gentian violet or tincture of mercuriolate was most effective. Symptomatic relief was particularly rapid. There was no evidence to implicate vitamin deficiency.

Brain, London

63:1-122 (March) 1940

*Forms of Growth in Gliomas and Their Practical Significance. H. J. Scherer.—p. 1.
Pyramidal Lesion in Monkey. Sarah S. Tower.—p. 36.
Angio-Architecture of Gliomas. J. Hardman.—p. 91.

Gliomas and Their Significance.—Scherer studied in necropsies the mode of growth of 120 cases of glioma. Celloidin sections including the whole tumor with surrounding tissues from one end of the glioma to the other were utilized in the study. This method is indispensable, as the majority of gliomas are more extensive than their macroscopic aspect might lead one to suppose. All gliomas, except ependymoma, show an infiltrative type of growth, although in widely differing degrees, by no means corresponding to the more or less "malignant" aspect of the glioma cells. Cerebral astrocytomas are the most invasive of all cerebral tumors, while glioblastomas include a considerable percentage of fairly well defined neoplasms with a narrow zone of growth. The cytologic tumor entities include gliomas of quite different types of growth, proving that cytology and histogenesis are insufficient to characterize the biologic behavior of a given glioma. Only about 30 per cent are relatively circumscribed tumors; their real extent exceeds but moderately their macroscopically visible limits. This group includes oligodendrogliomas, many cerebellar astrocytomas and certain medulloblastomas. Factors underlying this surgically rather favorable mode of growth are (1) a narrow, compact

zone of growth, (2) a halting of the tumor at certain preexisting structures, especially the cortex, and (3) degenerative processes at the edge. Tumors of the hippocampal region and the septum lucidum grow frequently in the form of round, expansive masses in the ventricular cavity. About 60 per cent of gliomas have a more diffuse character with a widespread zone of growth considerably exceeding the macroscopically visible "tumor" and involving more than one lobe. Nearly 35 per cent show what is probably a secondary diffuse growth, while 25 per cent must be considered as primarily diffuse neoplastic processes forming no circumscribed tumor. All cerebral astrocytomas belong to this group. In the common case of malignant dedifferentiation of an astrocytoma into a glioblastoma, often the glioblastoma alone is visible as a macroscopic "tumor," surrounded by a large astrocytoma zone the true character of which is discovered only by microscopic examination. About 10 per cent of gliomas show a primarily multicentric type of growth and in half of these cases this multicentricity is visible only on complete microscopic study. The macroscopic examination shows only one main tumor. Infiltration and destruction by growth are by no means necessarily associated in gliomas. Long-continued preservation of nerve cells and fibers in the midst of tumor tissue is not specific for astrocytomas (although most constant) but occurs also in glioblastomas.

British Journal of Radiology, London

13:73-108 (March) 1940

Irradiation Assailed, or the Buried Talent. E. R. Carling.—p. 73.
Neutron Generator for Biologic Research. L. H. Gray, J. Read and J. G. Wyatt.—p. 82.
Determination from Absorption Data of Distribution of X-Ray Intensity in Continuous X-Ray Spectrum. D. E. A. Jones.—p. 95.
Pineal Localization: Rapid Direct Method. E. P. Allen.—p. 102.
Protection in Radium Teletherapy at Westminster Hospital: Summary of Measurements of Gamma Ray Doses Made Over a Number of Years with Condenser Ionization Chambers Carried by the Staff. C. W. Wilson.—p. 105.

Journal of Endocrinology, London

1:367-516 (Dec.) 1939

Effects of Androgens on Mammary Gland of Female Rhesus Monkey. G. van Wagenen and S. J. Folley.—p. 367.
Response of Inbred Mice to Estrone. C. W. Emmens.—p. 373.
Mutual Antagonism Between Estrogens and Androgens. C. W. Emmens and T. E. T. Bradshaw.—p. 378.
Effect of Vasopressin, Sex Hormones and Adrenal Cortical Hormone on Body Water in Axolotls. D. Dow and S. Zuckerman.—p. 387.
Contributions to Research on Female Sex Hormones: Implantation of Mouse Egg. Suzanne Bloch.—p. 399.
Growth of Reproductive and Endocrine Organs of Female Rabbit. C. W. Emmens.—p. 409.
Effect of Progesterone on Gonadotropic Potency of Rat's Pituitary. H. Burrows.—p. 417.
Disturbance of Growth by Diethylstilbestrol and Estrone. J. H. Gaarenstroom and L. H. Levie.—p. 420.
Observations on Secondary Sexual Characters in Monkeys. S. Zuckerman and A. S. Parkes.—p. 430.
Effects of Digestion by Proteolytic Enzymes on Gonadotropic and Thyrotropic Potency of Anterior Pituitary Extract. B. F. Chow, R. O. Greep and H. B. van Dyke.—p. 440.
Observations on Metabolism of Dogs Made Permanently Diabetic by Treatment with Anterior Pituitary Extract. H. P. Marks and F. G. Young.—p. 470.

Lancet, London

1:583-628 (March 30) 1940

*Lupus Erythematosus: Effects of Sulfonamides. H. W. Barber.—p. 583.
Mystery of Alimentation. E. P. Cathcart.—p. 586.
*Diluents for Stored Blood. M. Maizels and N. Whittaker.—p. 590.
Tumor Cells in Sternal Bone Marrow. L. Kreyberg and E. Poppe.—p. 593.
*Cause of Breech Presentation. C. K. Vartan.—p. 595.
Pfeiffer Bacillus Meningitis, Successfully Treated with Sulfapyridine, Complicated by Granulopenia. J. Sakula.—p. 596.
Picrotoxin in Treatment of Collapse Due to Barbiturates. S. W. Gillman.—p. 598.

Sulfonamides in Lupus Erythematosus.—Barber's experience in the last twenty years strengthened his earlier (1915) belief that in some cases of lupus erythematosus the cutaneous reaction may be due to streptococcal and possibly other infections. He employed sulfonamides in lupus erythematosus for two and a half years. Most of the patients were investigated to determine whether tuberculous, streptococcal or other chronic infections were present. In the few in whom tuberculosis

appeared likely to be responsible the eruption was not benefited. In most cases a chronic and often widespread streptococcal infection was found. When such foci were present they were removed before treatment with sulfonamides was begun. In some no foci were discovered but the patients gave a history of previous removal of foci or of acute diseases presumably streptococcal in origin, such as recurrent tonsillitis, scarlet fever or rheumatic fever. Most patients felt acutely ill after azosulfamide or sulfapyridine therapy for from eight to fourteen days. Their temperature rose, sometimes preceded by a chill. In some cases a generalized scarlatiniform eruption appeared. This was regarded as due to the liberation of streptococcal toxin by the drug from latent foci of infection. It differs from other types of eruption provoked by these drugs. This scarlatiniform erythema did not recur after subsequent administration of the drug. In several cases focal reactions were evident in the patches of lupus erythematosus. The reactions at times were accompanied by severe rheumatic pains and at times by swelling and tenderness of the lymph nodes. The drug was discontinued when the reactions developed, and the symptoms rapidly subsided. The therapeutic effects were good. Some patients had previously received gold salts or bismuth compounds but they declared that the effects of azosulfamide or of sulfapyridine were superior. Several patients had relapses after their lesions had entirely or partially disappeared. In no other disease has the author observed reactions comparable to those which have developed with such remarkable uniformity in lupus erythematosus. The severity of the reactions makes it imperative that the patient be warned that such reactions are likely to develop and that the drug be omitted as soon as symptoms arise. Ambulatory treatment should never be attempted in the presence of an acute, widespread eruption. The patient must rest in bed for several days before beginning a course of the drug. The dose was seldom more than one tablet three times a day and was often less.

Diluents for Stored Blood.—Maizels and Whittaker investigated the effect of tonicity and the pH on the survival of cells in stored blood. They found that the cells of blood stored with the standard citrate-saline solution (0.85 per cent of sodium chloride, 1.05 per cent of sodium citrate), which is hypertonic, are hypertonic, whereas cells stored with a truly isotonic solution (0.43 per cent of sodium chloride, 1.05 per cent of sodium citrate) are isotonic. After a month's storage the hypertonic cells show more hemolysis. If the unhemolyzed cells of each system are then mixed with fresh normal plasma, the hypertonic erythrocytes show a further 50 per cent hemolysis and the isotonic cells show no lysis at all. Blood cells stored with a truly isotonic anticoagulant solution are therefore much more likely to survive after transfusion. If storage is prolonged, sodium salts flow into the cells, which swell and finally hemolyze. If acid is added to a saline-citrate-blood mixture so as to decrease the pH to about 6.6, hemolysis is reduced by about half, probably owing to decreased penetration of cation at low pH . If carbohydrate is added to stored blood, sodium penetration and cell swelling are decreased, and at six weeks hemolysis is about a tenth of that observed in simple salt solutions. A suitable anticoagulant diluent for blood is 0.43 per cent of sodium chloride and 1.05 per cent of sodium citrate. It is desirable to add dextrose or dextrin in a final concentration of 1 and 3 per cent, respectively, to improve preservation. If this is done the system becomes slightly more acid. To counteract cell swelling due to acidity it may be desirable to increase the sodium chloride in the solution to 0.5 per cent.

Cause of Breech Presentation.—According to Vartan, most of the factors reported as causes of breech presentation at term rarely occur. He concludes that either the "cause" is so rare as to be almost a chance coincidence or that the cause in almost every case is unknown. An analysis of 969 cases of breech delivery demonstrated that it is wrong to assert that the cause of the breech presentation at term is a pelvic anomaly which prevents the head from entering. Such conditions cause the oblique position. The cause of breech presentation persisting till term is to be seen in the failure of the fetus to undergo spontaneous cephalic version. The fetus is prevented from undergoing version by its extended attitude in 37.3 per cent of the cases, by the presence of another fetus in the uterus in

23.6 per cent of the cases, and by prematurity in 9 per cent. In 22.9 per cent of the cases no cause is recorded. The percentage of cases in which placenta praevia is associated is so small as to make it doubtful whether this can be called an etiologic factor. For the same reason contracted pelvis cannot be regarded as an etiologic factor. Pelvic tumors, abnormally shaped uterus, hydrocephalus, hydramnios and anencephaly are too rare to be of significance.

Medical Journal of Australia, Sydney

1:361-396 (March 16) 1940

Harelip and Cleft Palate. K. B. Fraser.—p. 361.

1:397-428 (March 23) 1940

Serologic Response to Influenza Virus Infection During Epidemic, with Particular Reference to Subclinical Infection. F. M. Burnet, J. F. J. Cade and Dora Lush.—p. 397.
Industrial Eye Injuries. D. R. Gawler.—p. 401.
Sternal Biopsy. T. E. Wilson.—p. 405.
Operation for Ankylosing Knee Joint. N. D. Royle.—p. 410.

Proceedings of Royal Society of Medicine, London

33:237-294 (March) 1940

Extra-Abdominal Resection of Colon. V. Z. Cope.—p. 249.
Electrically Induced Convulsions. W. G. Walter and G. W. T. H. Fleming.—p. 261.
Clinical Applications of Electrically Induced Convulsions. W. H. Shepley and J. S. McGregor.—p. 267.
*Preliminary Observations on Use of Convalescent Serum in Treatment of Acute Rheumatism. C. A. Green, A. J. Glazebrook, S. Thomson and W. A. Hopkins.—p. 275.

Convalescent Serum in Acute Rheumatism.—Green and his associates observed a considerable amount of acute rheumatism in communities of young male adults engaged in strenuous physical training. In the majority of cases nasopharyngeal infection antedated the insidious onset of stiffness and pain in one or more joints. In others the disease appeared with hyperpyrexia, sweating and polyarthritides. Large effusions were not common, but tenderness, slight puffiness and edema of surrounding tissues were common. The joint lesions rapidly improved and left no permanent injury. The initial pyrexia rarely lasted longer than one week but in exceptional cases persisted for months. Remissions and relapses occurred frequently. Cardiac complications were frequent, despite the apparent mildness of infection. A number of patients did not show any tendency to develop cardiac lesions. As the patients were otherwise healthy young adults, it was decided that serum obtained from them during convalescence should be tried in the acute phases of the disease in subsequent cases. From 300 to 400 cc. of blood was obtained between the fourth and eighth week after the temperature had settled. Criteria of suitability included good general condition, absence of cardiac complications and an almost normal erythrocyte sedimentation rate. Following withdrawal of the blood, the serum was separated, filtered and preserved by the addition of phenol. The serum was subjected to the Wassermann and the routine sterility tests. This type of serum has been used in the treatment of fifteen patients. The serum was given either intramuscularly or intravenously in daily doses of from 10 to 20 cc. The injections were usually repeated for several days. Ten patients were treated with serum alone and seven of these, six with primary attacks and one with a recurrence, reacted favorably. In the five cases of the second group, serum therapy supplemented other treatment such as exhibition of salicylates. Three of these five patients returned to work without carditis. The authors gained the impression that, when given in the early stages of an attack, serum apparently reduced the period of pyrexia, particularly in primary attacks. Arthritic pain was relieved in such cases. The volume of serum was not large enough to permit really adequate dosage in every case, but the results obtained justify further extension of this method.

Tubercle, London

21:121-152 (Jan.) 1940

Impressions After Sixteen Years' Experience in a Tuberculosis Settlement. E. L. Sandiland.—p. 121.
Pregnancy and Tuberculosis. B. S. Pollak and B. P. Potter.—p. 123.
Protamine Zinc Insulin in Treatment of Diabetes Complicated by Tuberculosis. E. Nassau.—p. 132.

Gynécologie, Paris

38:565-616 (Nov.-Dec.) 1940

*Case of Antepartum Peritonitis of Undetermined Origin: General Review of Peritonitis of Pregnancy. A. Laffont and M. Piétri.—p. 565.

Peritonitis of Pregnancy.—Laffont and Piétri report a case of acute generalized antepartum peritonitis of obscure origin in which surgical exploration failed to reveal the source. The particular susceptibility of the peritoneum of pregnant women is the decisive factor in peritonitis of obscure origin. Microbe inoculation, however indispensable, exerts its action only because of this factor. It is the energy of the peritoneum which increases the power of invasion of a perhaps minimal microbe inoculation. This explains the paucity of surgical and post-mortem observations. The incidence of this form of peritonitis is insignificant. Some of the cases arise from an indisputably septic focus, such as peritonitis supervening on a cutaneous pneumococcal or staphylococcal infection. There is a group of cases in which the following factors are of etiologic significance: vulnerability of the peritoneum of pregnancy, occult infection of the serosa without a rupture of a viscus, monomicrobism as opposed to the multimicrobe invasion of perforating peritonitis, almost invariable death of the fetus in premature delivery and its occurrence in the last trimester of pregnancy. Nine similar cases are analyzed. The colon bacillus is the common etiologic factor in this form of peritonitis, which is difficult to differentiate from the appendicular form. Except in the cases in which premature delivery is induced, the treatment consists in surgical intervention and drainage. The approach is made by way of the right iliac fossa in order to permit differentiation from appendicitis. The patient is given sufficient morphine to avoid premature delivery. The iliac incision calls for careful observation while one is awaiting the term. If the wound is not healed at term, it may be utilized in the performance of an atypical cesarean section.

Presse Médicale, Paris

48:305-328 (March 20-23) 1940

Temperature Curves and Endocrine Injections in Gynecology. P. Moequet and R. Palmer.—p. 305.

Arthrodesis in Tabetic Arthritis. Costantini and Kehl.—p. 308.

*Roentgenologic Detection of Foreign Intraperitoneal Fluids in Peritonitis, Hemoperitoneum and Perforations. A. Cosaccesco, N. David and C. Stanesco.—p. 310.

*Average Diameter of Erythrocytes as Diagnostic Aid in Differentiation of Icteri. L. Schalm.—p. 312.

Roentgenologic Detection of Intraperitoneal Fluids.—Cosaccesco and his associates stress the diagnostic value of roentgen rays in determining the site and quantity of free fluids in acute abdominal lesions. Nine cases are analyzed from this point of view. The roentgen rays were particularly helpful in demonstrating lateral pus collections which might otherwise have been overlooked. A patient's failure to improve after ample drainage could be traced not to the development of fresh foci but to previously unrecognized pus accumulation. Although roentgenograms suffer from the disadvantage of being able to detect only significant peritoneal effusions, the demonstration of abundant extravasation of blood in shock or of multiple wound lesions is of value in making prompt surgical intervention mandatory. Abdominal roentgenoscopy may also be of value in the postoperative period with obscure manifestations.

Erythrocyte Diameter in Icterus.—Schalm investigated the diagnostic value of macrocytosis for distinguishing icterus in 100 cases other than cirrhosis of the liver. Only cases were considered in which bilirubinuria and a positive van den Bergh serum reaction were observed. The measurements were carried out by means of Pyper's halometer and were repeated during the course of the disease. The author found the diameter measurements decidedly valuable in distinguishing parenchymatous icterus from obstructive icterus. A normal average erythrocyte diameter or one not exceeding 0.7 micron, after icterus had existed for several weeks, indicated an uncomplicated occlusion of bile ducts, irrespective of the cause of obstruction. An average erythrocyte diameter attaining or exceeding 1 micron was proof of extensive destruction or of serious functional impairment of the parenchyma of the liver. The one exception to this observation was certain cases of carcinoma of the head

of the pancreas which disclosed a 1 micron diameter increase without concomitant parenchymatous lesions. Borderline measurements between 0.7 and 1 micron, noted in eleven of the 100 cases, were excluded from the inquiry. Repeated tests are necessary to determine whether an icterus presenting initially only a small increase in the average diameter of the erythrocytes might not show within a few days an unexpected enlargement. In all cases in which parenchymatous degeneration developed from simple biliary obstructions, the diameter of the erythrocytes increased by 1 micron or more.

Schweizerische medizinische Wochenschrift, Basel

70:205-224 (March 9) 1940. Partial Index

*Forms of Tuberculosis and Age. M. Dressler and R. Gitermann.—p. 205.

*Brucella Abortus Infection in Prematurely Born Infant. Emmy Buser-Plüss.—p. 208.

Digital Reflex as Pyramidal Sign of Upper Extremities. R. Rosner.—p. 210.

70:249-268 (March 23) 1940

Kathepsin, Second Protease of Gastric Juice. E. Freudenberg and S. Buchs.—p. 249.

Treatment of Large Hemangiomas. K. Lenggenhager.—p. 250.

*Clinical Experiences with Heiborsid. M. Grossmann and B. Benzon.—p. 251.

*Forms of Tuberculosis and Age. M. Dressler and R. Gitermann.—p. 254.

Micromethod for Determination of Prothrombin Time. N. Fiechter.—p. 259.

Inanition Psychosis Following a Fasting Cure. M. Efmoff.—p. 260.

Tuberculosis and Age.—Dressler and Gitermann investigated the relation between the form of tuberculosis and the age of patients examined at the Zurich polyclinic during 1933. They compare their observations with those of other investigators and arrive at practically the same conclusions. The curve of tuberculous morbidity discloses the maximum of incidence between the ages of 20 and 40; it is reached earlier in women (third decade) than in men (fourth decade). The number of cases is higher among men, with regard both to the open and to the closed tuberculosis. The various forms occur in the two sexes in approximately the same percentage. A curve indicating their distribution over the various age groups indicates that secondary infiltrations appear comparatively early, 50 per cent occurring before the age of 20 and 80 per cent before the age of 30. The early infiltrates are likewise most frequently found in young persons, particularly during the third decade of life. The chronic tertiary forms of tuberculosis develop later and are observed in the highest age groups. Open tuberculosis, in contradistinction to closed tuberculosis, is rarely restricted to one pulmonary field. The apexes and the upper field are especially often involved and about twice as frequent on the right as on the left side. Bilaterality is more frequent in open than in closed tuberculosis (56 and 29 per cent, respectively). Pleuritic complications (pleurisy and adhesions) occur with equal frequency in the two forms; that is, in approximately one third of the cases. Patients with early infiltrate are most often free from pleuritic complications, a factor that is important for collapse therapy. The pleuritic complication is usually (in from 80 to 90 per cent) ipsilateral with the pulmonary process. The preferred localization of the primary focus is the right lower field; then follow the left middle and lower fields.

Brucella Abortus Infection in Premature Infant.—Buser-Plüss reports the occurrence of undulant fever in an infant born two and one half months before term. She assumes that the infection was transmitted either in the uterus or by the breast milk. The typical picture of undulant fever gradually developed possibly because of the gradual decrease in immune bodies supplied by the mother or as the result of weakening by intercurrent diseases. The undulant fever persisted for months, terminating in a cure despite severe complications. The relatively benign character of the disease indicated by the low agglutination titer in mother and child may have been the result of an earlier Brucella infection among the cattle belonging to the family. The premature infant had a Brucella abortus infection which presented typical aspects of undulant fever with numerous complications, especially on the part of the respiratory organs. An intra-uterine infection cannot be here established beyond a doubt, but the following points speak in its favor: (1) latent Brucella abortus infection of the

mother during or shortly before pregnancy, (2) premature birth in the sixth month, presumably as the result of the maternal infection, and (3) insidious appearance and slow development of undulant fever in the infant during the first months of life; that is, at an age which otherwise is immune against *Brucella abortus* infection.

Clinical Experiences with Helborsid.—Helborsid, according to Grossmann and Benzon, is a solution of hellebrin, crystallized pure glucoside of *Helleborus niger*. Hellebrin differs from helleborein in being about twenty times more active. Like strophanthin it is a glucoside of the second order, but, in contradistinction to strophanthin, its aqueous solutions are highly stable, retaining their efficacy for years. The pharmacologic properties of hellebrin greatly resemble those of strophanthin. The authors administered helborsid to seventy-four patients with forms of decompensation the result of valvular lesions, myocarditis and coronary sclerosis with or without angina pectoris. They excluded from treatment all patients with mild forms of decompensation in whom bed rest and small oral doses of digitalis produced the desired results. Helborsid was administered intravenously. The initial dose was 0.5 cc. of the solution containing 0.25 mg. of hellebrin, increased later to 1 cc. and rarely to 1.3 cc. The injection was given daily, occasionally twice daily, until the desired effect was obtained. The later treatment was intermittent, like that of modern strophanthin therapy. The total number of injections varied, a few patients receiving as many as thirty. Helborsid is a highly effective cardiac stimulant. Its action is similar and in some respects superior to that of strophanthin. It is less toxic and its secondary effects are either absent or appear later and in a milder form. This makes it possible to treat many patients with severe heart disease, in whom neither digitalis nor strophanthin can be employed because of the rapid development of secondary toxic effects.

Annali di Radiologia Diagnostica, Bologna

14:1-68 (Feb.) 1940. Partial Index

- *Juvenile Diabetes and Intracranial Hypertension. F. Landogna Cassone.—p. 1.
Pleuropulmonary Reactions After Roentgen Therapy in Cancer of Breast. R. Camerini.—p. 18.

Juvenile Diabetes and Intracranial Hypertension.

Landogna Cassone made a clinical and roentgenologic diagnosis of intracranial hypertension in six of a group of ten children with diabetes. The clinical symptoms, such as frontal headache, vomiting, frequent nausea, hyperemia and edema of the papillary disk, were noted one or two years before the development of diabetes. The roentgenograms showed thinning of the cranium, finger-like shadows on the cranial bones, dilatation of the venous sinuses and alterations of the sella turcica. The author believes that juvenile diabetes is caused by a lesion of the hypothalamus and of the hypophysis, the result of an acquired hydrocephalus and increased intracranial tension. The hydrocephalus is either primary (serous meningitis) or secondary to early synostosis of the cranial bones. A proper medical regimen, diet and decompression are indicated. Decompression can be accomplished by antisyphilitic treatment (even if a diagnosis of syphilis is doubtful), by lumbar puncture repeated at monthly intervals or by trephining.

Deutsches Archiv für klinische Medizin, Berlin

185:393-480 (Jan. 16) 1940

- *Circulatory Impairment and Nicotine. B. Weicker.—p. 393.
Significance of Highly Positive T Waves in Electrocardiogram. W. Breu and S. Zollner.—p. 416.
*Value of Vitamin C in Treatment of Acute Infectious Diseases. F. Szirmai.—p. 434.
Especially Mild Form of Suppurating Meningitis. G. Körner.—p. 444.
Clinical Investigations and Animal Experiments on Regulation of Carbohydrate Metabolism in Diphtherial Intoxication. A. Schweers.—p. 458.
Case of Boeck's Disease. F. Kollbrunner.—p. 471.

Circulatory Impairment and Nicotine.—Weicker reports observations on acute and chronic nicotine poisoning in twenty-four men between the ages of 17 and 53 who smoked daily between fifteen and fifty cigarettes. In a man aged 36 who smoked on an average fifty cigarettes daily for the last ten years, symptoms of acute nicotine poisoning appeared in the

form of a severe abdominal intoxication. Death ensued within eight hours. Necropsy revealed a cardiac infarct of the anterior wall with extensive lipid sclerosis of coronary vessels and the aorta. Acute or chronic cardiac infarcts were observed in seven men. In one of them, aged 53, who had been in the habit of smoking forty-five cigarettes daily, necropsy disclosed severe coronary sclerosis and an acute infarct of the anterior wall. Disturbances in the cardiac conduction were present in three men whose electrocardiograms disclosed prolongation of PQ and widening of QRS. In one, atrioventricular block developed suddenly as he was smoking a cigaret on an empty stomach. A man aged 43 who smoked about thirty cigarettes daily had coronary insufficiency. In eight younger men (average age 28) with a daily consumption of from twenty to fifty cigarettes, anginal symptoms were present. These patients frequently presented a bradycardia and steep and high T deflections and widening of the QRS complex in the cardiograms. Thrombo-angiitis obliterans was observed in four men. In two of these, nicotine was the only demonstrable external cause capable of impairing the peripheral circulation, and in the other two exposure to cold and dampness may have played a part. Some investigators believe that cigaret smoking is not necessarily the only cause of thrombo-angiitis obliterans but that it may contribute to its development because of the constricting influence of nicotine. The final solution of this problem is still impossible. Statistical studies indicate that patients with thrombo-angiitis obliterans are nearly always heavy smokers. Measures for the restriction or prevention of smoking, particularly among young persons, are discussed.

Vitamin C in Acute Infectious Diseases.—Szirmai investigated the therapeutic value of vitamin C in toxic diphtheria, in typhoid and in pneumonia over a period of three years. In toxic diphtheria with edema of the mucous membranes the death rate was greatly reduced when, in addition to the large doses of serum, ascorbic acid was given. As a rule, 300 mg. of ascorbic acid was administered intravenously, simultaneously with the serum, but in a separate syringe, so as not to impair the antitoxin. When intravenous injection was technically not possible, the acid was given intramuscularly. The parenteral administration of 300 mg. of ascorbic acid was repeated daily for from three to four days. In addition the patients were given for from 50 to 100 mg. of ascorbic acid by mouth three times daily for about a week. In mild typhoid, the patients were given the juice of two or three lemons daily. Patients with typhoid of moderate severity were given, in addition, 100 mg. of ascorbic acid by mouth three times daily. Patients with typhoid in a severe form were given daily intravenous injections of 300 mg. for from four to five days. Under this management intestinal hemorrhages were almost completely prevented. In diphtheria and in typhoid, favorable results were obtained even when the doses were not sufficient to produce saturation. In pneumonia, however, the deficit of vitamin C had to be completely compensated before therapeutic results could be noted. Children with lobar pneumonia were given intravenous injections of 300 mg. of ascorbic acid once or twice daily. According to the literature from 2,000 to 3,000 mg. is necessary to produce saturation in pneumonia patients. The author emphasizes that the mode of action of ascorbic acid in acute infectious diseases has not been explained and that therefore the ascorbic acid itself rather than its neutralized solutions should be administered.

Geburtshilfe und Frauenheilkunde, Leipzig

2:57-112 (Feb.) 1940. Partial Index

- Anesthesia and Narcosis in Gynecology. H. Franken.—p. 57.
Cesareotomy in Placenta Praevia. W. Bickenback.—p. 68.
*Concentrated Dextrose Therapy in Pregnancy Toxicosis, Especially in Eclamptic Conditions. H. Albers.—p. 78.
Serologic Reactions in Carcinoma. H. Dietel.—p. 99.

Dextrose Therapy in Puerperal Eclampsia.—Albers reports on the use of strong concentrations of dextrose in a large percentage of fifty-five cases of toxemia of pregnancy, observed in a total of 3,965 deliveries, with five deaths. Dextrose was employed in sixteen cases presenting acute prodromal antepartum symptoms of eclampsia, in eighteen cases of intra-partum eclampsia and in several cases of postpartum eclampsia.

The remainder were cases of toxemia without cerebral manifestations and were managed with rest and a carbohydrate and raw vegetable diet. Dextrose was given intravenously in quantities of 100 cc. in a 50 per cent solution, administered during three to five minutes. In one case six injections were made, three of 100 cc. within five hours. Dextrose therapy was successful in eleven of the sixteen cases with preeclamptic symptoms and made delivery by the normal route possible. The remaining five presented complications and required surgical intervention. A single injection of 100 cc. was frequently sufficient to abort the onset after a few minutes. Dextrose therapy in the eighteen cases of intrapartum eclampsia had only a limited effect. In only six was it capable of inducing the complete dilatation of the cervix and of permitting normal delivery. The other twelve had to be managed surgically. In six cases of eclampsia, occurring for the first time post partum, complete relief was effected by a single injection and in three others only one subsequent attack was observed. The author stresses the necessity of strict clinical control, as patients will not carry out instructions spontaneously. He believes that dextrose achieves the same results as a lumbar puncture with less difficulty, at the same time correcting carbohydrate deficiency. To avoid recurrence of increased lumbar pressure and the danger of eclampsia, he employed forceps as the method of choice in completing the delivery. In cases in which erythrocytes and granule casts appeared in large quantities in the urinary sediment or in which an eclamptic onset recurred after the first injection, instrumental delivery was resorted to. Thrombosis of the injected vein is not to be feared even after several injections.

Klinische Wochenschrift, Berlin

19:145-168 (Feb. 17) 1940

Clinical Manifestations of Adrenal Insufficiency. S. Thaddea.—p. 145.
Anaerobic Photochemical Oxidation of Pyrrolic Acid by Serum. W. Seitz.—p. 152.

Vitamin C Content of Dry Milk. F. Jung.—p. 153.

*Elimination of Histidine in Urine. W. Neuweiler and W. Grimm.—p. 155.

Further Results with Filarial Complement Fixation Reaction. W. Mohr and H. Lippelt.—p. 157.

Pathogenesis of "Laquer Scabies." H. Riedel.—p. 159.

Elimination of Histidine in Urine.—Neuweiler and Grimm direct attention to the Kapeller-Adler pregnancy test, based on the fact that the urine of pregnancy contains large quantities of histidine. Other investigators observed that histidine elimination takes place not only during pregnancy but also in hepatic and allergic disorders. The histidinuria of hepatic disease has been ascribed to an altered function of the hepatic histidinase, and it has been suggested that that of pregnancy might be traceable to an inhibition of the hepatic histidinase by gonadotropic substance. Histidine has been detected in the urine of healthy men and children. The authors studied the question of histidinuria in nonpregnant and in puerperal women and determined the changes that may be produced in the elimination of histidine by the administration of histidine monohydrochloride and of vitamin C. Tests were made on 455 urines. Among twenty-five women whose pregnancy had not advanced beyond the fourth month there were twenty-three exhibiting histidinuria, whereas the 247 women in the more advanced stages of pregnancy all had histidinuria. Thus 99.3 per cent of the pregnant women eliminated histidine. Histidinuria was observed in only 15 per cent of the nonpregnant women. During the first days of the puerperium, urinary elimination of histidine was constantly observed. Daily control examinations on eight puerperal women disclosed that histidine elimination ceased in all from the tenth day on. It was not possible to reduce histidine elimination by saturation with vitamin C. By the administration of histidine monohydrochloride it was occasionally possible to increase the histidinuria and to induce a positive histidine reaction in nonpregnant women. A correct bromination is of great importance for the demonstration of histidine. Urines which contain nitrite must be brominated until a lemon yellow color results; urines free from nitrites until potassium iodide-starch paper turns blue. The blueness which develops in the urine, in contradistinction to that developing with pure histidine solution, can be extracted by butyl alcohol; this intensifies the sensitivity of the reaction.

Wiener Archiv für innere Medizin, Vienna

33:277-348 (Jan. 20) 1940

Clinical Pictures of Hypophysis. W. Falta.—p. 277.

*Recurrent Peptic Ulcers of Jejunum and "Surgically Incurable" Ulcers. H. Finsterer.—p. 296.

Sickle Cell Anemia. K. Makrycostas.—p. 330.

Recurrent Peptic Ulcers of Jejunum.—According to Finsterer, recurrent jejunal peptic ulcers are wrongly regarded as surgically incurable. He reports successful results in nineteen out of twenty-three recurrent cases secured by means of radical resection. The patients were men between 26 and 56 who had undergone from two to seven abdominal operations previously. They were predominantly younger men (four under 30, five under 40), five of whom had gastric disorders from childhood. Seven of the eight patients between 50 and 56 had been under treatment from twenty-eight to thirty-nine years. Recurrence of ulceration was due to Y shaped anastomosis (twelve), to entero-anastomosis (five) and to insufficient resection (six). Eighteen of the cases showed complete absence of complaints after resection. One patient had been operated on seven times within four years and had been well after resection for the last four years. Several other patients had been restored to health for from ten to twelve years. The four deaths were due respectively to necrosis of the gastric wall, to cardiac lesions, to peritonitis and to a double gastrointestinal fistula. The author believes that failure to employ radical resection when it is indicated accounts in large part for the recurrence of these ulcers. Persistent symptoms after prolonged medical management constitute an indication for resection even in the absence of a gastroduodenal fistula or hemorrhages. Finsterer advocates resection of two thirds of the stomach and more when dilatation is present. He rejects Y shaped anastomosis except when subtotal resection is carried out to the extent of leaving one fifth or one sixth of the normal stomach. He believes that radical resection is indicated in youthful subjects with a history of recurrences. On the basis of more than 3,000 cases of stomach resection Finsterer recommends local anesthesia and splanchnic anesthesia for protracted operations.

Vestnik Khirurgii, Leningrad

58:299-384 (Oct.) 1939. Partial Index

Intravenous Anesthetic "Pronarkon" (Isopropyl-B-Bromallyl-N-Methyl Barbiturate). V. P. Noshchinskiy.—p. 299.

Intravenous Alcohol for Control of Pain. B. L. Bronshteyn.—p. 304.

*Blood Chloride Content in Preoperative and Postoperative Periods. L. S. Bekerman.—p. 309.

Effect of Local Infiltrating Anesthesia on Local Leukocytosis in Inflammatory States. V. Kofman and A. Chudnaya.—p. 316.

Symptoms and Treatment of Metastatic Brain Abscess. A. V. Bondarchuk.—p. 322.

Blood Chlorides and Surgery.—Bekerman studied the blood chloride levels of 115 surgical patients. The chloride content of patients in the preoperative period as expressed in milligrams per hundred cubic centimeters of sodium chloride varied within considerable limits from 425 to 590 mg., the figure in women being somewhat higher than in men. A fall in the blood chlorides was a constant sign in gastrointestinal obstruction. It is not, however, pathognomonic of obstruction since it may be present in diseases characterized by profuse vomiting or diarrhea, in pneumonia and in peritonitis. A fall in chlorides was constantly observed both in mechanical and in dynamic obstruction of any segment of the intestine. The degree of the fall depended on the duration of obstruction. A uniform fall of from 10 to 30 mg. was noted on the first postoperative day. This did not appear to depend on the anesthesia or on the character or duration of the operative intervention. A postoperative fall of more than 30 mg. the author considers indicative of a threatening complication, intestinal atony or pneumonia. A parallelism was observed between the extent of lowering of the blood chlorides and the gravity of symptoms of intoxication. A fall in the chloride level of 150 mg. as compared with the preoperative level, or a level below 300, signifies a grave state threatening the life of the patient. The author suggests repeated infusions of hypertonic solution of sodium chloride and blood transfusion in the preoperative period as a prophylaxis against postoperative complications in patients with a lowered preoperative blood chloride level.

Vrachebnoe Delo, Kharkov

21:531-610 (No. 9) 1939. Partial Index

Ethyl Chloride Anesthesia in Military Area. M. G. Khaskelovich.—p. 533.

Modern Therapy of Anemias. B. N. Dubinskaya.—p. 535.

Atypical Diseases of Hemopoietic Apparatus. G. A. Rakochi.—p. 545.

*Blood Bilirubin in Disease. A. I. Germanov and T. I. Krylova.—p. 551.

Treatment of Erythremia with Spleen Preparations. A. N. Sokolov.—p. 555.

Relationship of Alkali Reserve of Plasma and of Erythrocytes in Alkalization Therapy. V. A. Leybovich-Livshina.—p. 559.

Blood Bilirubin in Disease.—Germanov and Krylova investigated the blood bilirubin content and the qualitative van den Bergh reaction in 343 persons. Of these, ninety-eight were well and ninety-six had malaria, fifteen renal disease, seventeen mechanical jaundice, forty-one jaundice of parenchymatous origin, eight decompensated cardiovascular disease, eight hypertrophic cirrhosis of the liver, eight croupous pneumonia and fifty-two various diseases such as gastritis and bronchitis. Bilirubin determinations were made by the van den Bergh micro-method with the Autenrit colorimeter. The bilirubin content in healthy persons was found in amounts of from 0.25 to 0.45 mg. per hundred cubic centimeters. The indirect van den Bergh phase reaction was present. In malarial patients the bilirubin blood content was found to be increased to within 0.4 to 0.88 mg. per hundred cubic centimeters, occasionally up to 1 mg. In cases complicated with splenomegaly and jaundice the bilirubin content may rise above 1 mg. An indirect van den Bergh reaction is obtained. With treatment the bilirubin content rapidly returns to normal. In obstructive jaundice the bilirubin content rose as high as 20 mg. Both the direct rapid and the delayed bi-phasic van den Bergh reactions are present. In the parenchymatous jaundice the blood gives both the direct and the bi-phasic van den Bergh reaction, while the maximal bilirubin content amounted to 26.5 mg. per hundred cubic centimeters. The jaundice threshold is represented by 1.5 mg. content. In the early stages of cardiac decompensation the blood bilirubin content is not above normal; in grave decompensation it may rise above 1 mg. The van den Bergh reaction is indirect or delayed bi-phasic. In grave renal disease and in cases of chronic uremia the bilirubin blood content is markedly lowered. The authors conclude that the blood bilirubin content determination is valuable as an aid in the diagnosis, treatment and prognosis of a number of disease states such as malaria, jaundice, avitaminosis, renal disease and cardiovascular disease. The van den Bergh micro-method utilizing the Autenrit colorimeter yields accurate results.

Geneeskundig Tijdschr. v. Nederl.-Indië, Batavia

80:449-512 (Feb. 20) 1940. Partial Index

*Neurologic Complications in Epidemic Parotitis. I. Snapper.—p. 450.

Premature Detachment of Placenta. R. S. Prawirohardjo.—p. 457.

Sources of Error in Apparently Good Blood Pressure Manometers. A. Saleh.—p. 470.

Bilharzia Japonicum in Lake Lindoe Region of Central Celebes. C. Bonne and J. H. Sandground.—p. 477.

Neurologic Complications in Epidemic Parotitis.—The occurrence of orchitis in about one third of the adult male patients indicates that parotitis is a generalized process rather than a local inflammation of the parotid gland. According to Snapper the virus of mumps attacks the central nervous system even more frequently than it does the testes. He cites a case in which parotitis became complicated with meningitis, meningo-radculitis and herpes zoster. Symptoms are observed in many cases of mumps which must be ascribed to involvement of the central nervous system. Severe headache, agitation, hallucinations, delirium, rigidity of the neck, Kernig's sign and slow pulse are to be regarded as symptoms of mumps-encephalitis. The meningo-encephalitis of mumps has a favorable prognosis. It is nearly always accompanied by a lymphocytosis of the spinal fluid, which may lead to the mistaken diagnosis of tuberculous meningitis. The peripheral nervous system may be involved; thus facial paralysis and paralysis of the palate or of the eye muscles have been observed after mumps. Since the disease process spreads from the meninges to the anterior roots, the author prefers the term meningo-radculitis to neuritis. Tetraplegia, neuro-ophthalmologic complications and deafness have

been observed. The central nervous system may become involved in apparently uncomplicated cases of parotitis without clinical symptoms of encephalitis and meningitis. A positive Nonne and Pandy test and a comparatively high lymphocyte count are detected in over 50 per cent of uncomplicated cases of mumps. Recent investigations have revealed that the virus is present in the spinal fluid of patients with mumps even in the absence of increased protein content and cell count. Rabbits given intraspinal injections of the cerebrospinal fluid of patients with mumps develop meningo-encephalitis. Herpes zoster is a comparatively rare complication of mumps. When present it is accompanied, as a rule, by objective symptoms of meningitis.

Acta Medica Scandinavica, Stockholm

103:1-199 (Feb. 13) 1940. Partial Index

Third Generation Syphilis. P. Majjala.—p. 1.

Anergic Tuberculosis or Schaumann's Disease? S. Berg.—p. 8.

*New Method of Conserving Blood for Transfusion. F. Corelli.—p. 24.

Microscopic Changes in Brain in Experimental Influenza. M. A. Sheld.

—p. 36.

Investigations of Pulmonary Function in Patients with Silicosis. E.

Roelsen and N. Bay.—p. 55.

One Hundred and Two Cases of Lobar Pneumonia Treated with Sulfapyridine. G. Alsted, E. Lundsteen and E. Mogensen.—p. 83.

Allergy and Rheumatism: How Does Hyperergic Tissue Impairment

Express Itself in Clinical Pictures of Chronic Rheumatic Infections

Arthritis? G. Edström.—p. 90.

Plasma Protein in Epilepsy. R. Eeg-Olofsson.—p. 111.

New Method of Conserving Blood.—In the course of research on the treatment of allergic diseases with desensitizing substances Corelli observed that blood collected with sodium thiosulfate remained fluid for a long time. This fact, coupled with the knowledge that thiosulfate is not toxic, suggested its use as a preservative. The thiosulfate anticoagulant, as prepared by the author for use in man, is innocuous. It has a desensitizing and antitoxic property particularly valuable in the prophylaxis of transfusion. From 5 to 6 cc. per hundred cubic centimeters of blood is sufficient if the blood is injected immediately, otherwise 7.5 cc. is added to 100 cc. This percentage is low when compared with other anticoagulant solutions. The red cells remain preserved for two or three weeks and longer; after that a moderate anisocytosis and microcytosis gradually set in. The platelets and the white cells, especially the neutrophils, decrease during the first five to ten days. Lymphocytes and monocytes are preserved for from twenty to thirty days. One thousand transfusions given in medical, surgical, obstetric and pediatric cases proved the tolerability of blood conserved with the author's method. In 92 per cent of the cases there was no reaction at all and in 8 per cent there was only a transient rise in temperature. Most of the transfusions were performed with blood one week old. The technic of collecting and transfusing the blood is simple. The author suggests that collection centers be created in large hospitals and clinics. The availability of conserved blood has its advantages, one of them being that it can be given by continuous drip. The author advises (1) the collection of the blood from a donor in a fasting state and its injection, when possible, to the recipient in the same state, (2) the use of compatible blood and, (3) when indicated, the injection of ephedrine, epinephrine or synephrin with caffeine when transfusion is begun.

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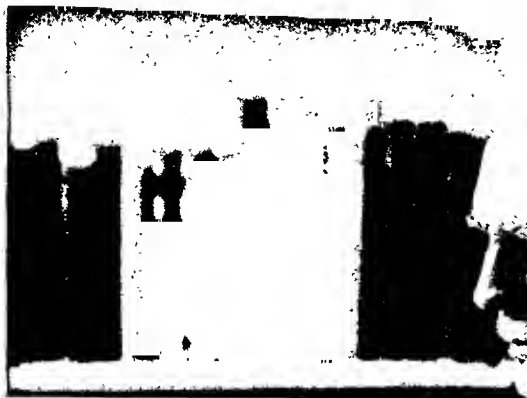
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Significance of Transurethral Resection According to McCarthy in Cancer of Prostate. E. Thyssen.—p. 175.

Three Cases of Exophthalmic Goiter After Treatment of Obesity with Thyroidin. W. T. Andersen.—p. 178.

*Case of Gastrocutaneous Fistula Treated by Feeding Through Jejunal Sound. K. T. Kjølshede.—p. 181.

Jejunal Feeding in Gastrocutaneous Fistula.—Kjølshede considers feeding through a jejunal sound a valuable method in postoperative gastrocutaneous and duodenocutaneous fistulas. He states that while introduction of the sound is difficult there is no further discomfort or risk for the patient, and he would first attempt to treat with this method all cases of fistula of the alimentary tract proximal to the jejunum. In the case reported fifty-one days passed without any sign of spontaneous healing, but the fistula closed after nine days of jejunal feeding.



Nathan B. Van Etten
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EARLY MILD INFESTATION WITH THE PARASITE *TRICHINELLA* *SPIRALIS*

REPORT OF TEN CASES

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It is only within the last few years that the prevalence and significance of human infestation by the nematode *Trichinella spiralis* has been brought to light. A few decades ago, trichinella infestations were regarded as rare occurrences, chiefly because in few individuals did sufficient symptoms develop to allow a diagnosis. Recent studies of autopsy material, however, have definitely proved that this disease is very common. Practically all of the accurate cadaveric studies indicate that at least 10 per cent of the population of the United States have some encysted trichinella parasites in their muscles before death. The recent studies of Evans¹ give the incidence as between 5 and 50 per cent in the various cities of the United States, with an average figure of 37 per cent.

It is obvious that there is a marked lack of agreement between the data obtained from necropsy studies and the number of clinical cases reported. The reason for the discrepancy is probably to be found in the high percentage of undiagnosed and symptom-free cases. It is only plausible that in most cases the symptoms are so mild or so lacking in characteristic manifestations that *Trichinella spiralis* infestation is not even considered.

After ingestion of the meat infested with the trichinella (usually pork) the encysted parasites are freed from their capsules by the process of digestion. After growing to maturity and mating, the female burrows into the intestinal wall and starts to produce young in large numbers. Approximately a week passes before the period of multiplication begins. The symptoms during this first period are those of an intestinal irritation: nausea, vomiting, low grade fever, diarrhea and abdominal discomfort. The degree of severity of the symptoms must depend largely on the number of worms present, and it seems only too plausible that one pair of worms would produce little or no discomfort.

The second stage of the disease (period of dissemination, or larval migration) begins from the eighth to the tenth day and may last several weeks. During this time large numbers of larvae enter the blood and pass to all

parts of the body. Apparently only those that reach the skeletal muscles survive, and their encystment and digesting away of the surrounding muscle tissue are the cause of the characteristic muscle pain and tenderness that develop. The liberation of the muscle protein probably produces the accompanying fever, edema of the face, prostration, cachexia and anemia appearing at this time. The third stage is that of muscle encystment and recovery.

As stated previously, it is probable that a very small number of parasites in the intestinal tract would produce few if any symptoms. Even in the muscle encystment process, a fairly large number of larvae would need to invade the muscles to cause a noticeable soreness; consequently it would seem that it might be difficult or even impossible to diagnose very mild cases of trichinella infestation. Furthermore, it also seems plausible that the administering of an anthelmintic before the period of multiplication begins might stop the entire process at this point.

During the previous school year we had a number of cases (all within about ten days) which we feel were produced by infestation with the trichinella parasite. All were very mild in character except one, and this case was only moderately severe.

REPORT OF CASES

CASE 1.—J. L. O., a white youth aged 19, came to the clinic on Jan. 18, 1939, with a complaint of abdominal pain and discomfort. The symptoms had been present for about forty-eight hours. The abdominal discomfort was described as a dull continuous ache. There had been no vomiting or diarrhea, jaundice, belching or abnormal stools. He had been eating regularly up to the day of admission, and his bowels had been entirely normal. He had never had a qualitative dyspepsia and had never had any serious gastrointestinal disturbances during his life. He also stated that he had noticed a low grade fever and had had several chills since the onset. All the rest of the history was entirely irrelevant except that he had eaten some fresh pork about twenty-four hours before the onset of the symptoms.

The patient was well developed and well nourished and appeared ill. There were no gross abnormalities. His face was flushed and there was a definite puffiness about the eyes. A small amount of tenderness over the frontal sinuses with some postnasal dripping was present. The chest was entirely normal, the blood pressure being 120 systolic, 78 diastolic. The abdomen showed a palpable descending colon but no tenderness or other abnormal signs. The genitalia, skin and extremities were entirely normal. There was no muscle tenderness. The temperature was 98.4 F. and the pulse rate 74. He was admitted to the hospital with a diagnosis of chronic sinusitis, ileocolitis and possibly trichinosis.

The urine was entirely normal. The white count revealed 7,000 white cells, and the differential count showed 14 per cent eosinophils, 64 per cent neutrophils, 20 per cent lymphocytes and 2 per cent monocytes. A cutaneous sensitivity test with the trichina antigen was strongly positive. He was given 3 Gm. of tetrachlorethylene followed two hours later by 30 Gm. of magnesium sulfate.

From the Department of Health, University of Arizona, and the Arizona State Laboratory.
1. Evans, C. H., Jr.: J. Infect. Dis. 63: 337 (Nov.-Dec.) 1938.

The next day the count showed 7,000 cells with 16 per cent eosinophils. By evening he was greatly improved, and his temperature and pulse were entirely normal. The highest temperature noted while in the ward was 99.4 F. There was no muscle tenderness at any time while he was in the hospital. He was discharged with a diagnosis of early trichinosis. Permission for a biopsy was refused.

On February 19 (thirty-four days later) he came in for a check-up. He had not been ill since discharge. The examination was negative. A count revealed 7,400 white cells, with no eosinophils nor basophils, 85 per cent neutrophils, 13 per cent lymphocytes and 2 per cent monocytes. A second check-up on May 25 was again entirely negative. The count was 6,600 white cells with 64 per cent neutrophils, 32 per cent lymphocytes, 4 per cent monocytes and no eosinophils or basophils.

CASE 2.—Miss B. H. U., a white girl about 17 years old, was admitted to the ward on Jan. 21, 1939, with a complaint of pain and discomfort in her abdomen. About midnight before the day of admission she awoke very nauseated and vomited several times. The nausea continued all night and was accompanied by several loose stools. In the morning she had a temperature of 100 F. The rest of her history was entirely normal or irrelevant. The food history was irrelevant. At the time of admission she was still nauseated but had no diarrhea, vomiting or other gastrointestinal complaints. She had not eaten all day.

The patient was well developed and well nourished with no gross abnormalities. Her temperature was 98.8 F. and her pulse rate 80. Her face was flushed and the skin around the

Blood Counts in Case 3

	Total	Eosino- phils	Neutro- phils	Baso- phils	Lympho- cytes	Monocytes
8:15 a. m.	6,600	4	60	0	27	10
1:15 p. m.	6,000	2	63	0	30	4
5:00 p. m.	6,200	12	61	1	19	7

eyes somewhat edematous. The throat, lungs and heart were entirely normal. Examination of the abdomen revealed some diffuse discomfort on manipulation, the tenderness being somewhat more marked in the right lower quadrant. There was no rigidity, abnormal masses or enlarged organs. Examination of the extremities revealed no muscle tenderness. The provisional diagnosis was acute gastro-enteritis or trichinosis.

The urine was normal except for a few epithelial cells. The total white count was 12,000 with 16 per cent eosinophils, 68 per cent neutrophils, 14 per cent lymphocytes and 2 per cent monocytes. The cutaneous test with trichina antigen was strongly positive. She was given 3 Gm. of tetrachlorethylene followed by magnesium sulfate two hours later.

During the next twenty-four hours her temperature varied from 99 and 101 F. By the end of the second day her temperature was normal and all the nausea and intestinal discomfort and tenderness had disappeared. She was discharged with a diagnosis of trichinosis with acute gastro-enteritis.

She returned January 30 (eight days from onset) for a check-up. She had no complaints and no abdominal or muscle tenderness. The white count was 6,000 with 3 per cent eosinophils, 57 per cent neutrophils, 36 per cent lymphocytes and 4 per cent monocytes.

CASE 3.—E. B., a white man about 21 years old, came into the clinic on Jan. 23, 1939, complaining of headache, fever, backache, pains in all his muscles, marked malaise and swollen glands in the back of the neck. All the symptoms except the muscle tenderness had been present for a week. He had eaten fresh pork one or two days before the onset. The muscle pain and tenderness had developed within the last two days. He had no complaints relative to the cardiovascular, respiratory, gastrointestinal or genito-urinary tract. No other relevant facts were obtained.

He stated that about a year before he had had an attack of a similar nature (which he called "glandular fever"). He was in the hospital for a week and was discharged with a diagnosis of trichinosis. No biopsy was made.

The patient was well nourished and well developed and acutely ill. His temperature was 101 F. and his pulse rate 95. His face was flushed and a definite edema was present in the soft tissues around the eyes. The conjunctiva was injected. The breath was foul and the tongue heavily coated. The mouth and throat, chest and abdomen were entirely normal. The muscles of the extremities were slightly tender. There was considerable posterior cervical adenopathy. He was admitted to the ward with a diagnosis of acute infection of the upper respiratory tract or typhoid.

The white count was 4,800 with 18 per cent eosinophils, 63 per cent neutrophils, 15 per cent lymphocytes and 4 per cent monocytes. The urine revealed only a trace of albumin. Agglutination tests for typhoid, paratyphoid, undulant fever and tularemia were all negative. The cutaneous sensitivity test with trichina antigen was very strongly positive. He was given 3 cc. of tetrachlorethylene followed by magnesium sulfate two hours later.

He was quite ill for the next forty-eight hours, his temperature going as high as 104 F. By the end of the third day, however, the headache and muscle pains had definitely improved. A white count showed 9,000 cells with 29 per cent eosinophils and 55 per cent neutrophils. The next day the patient had no complaints, although his face was still swollen and his temperature from 99 to 100.5 F. The white count was still 9,000, but the eosinophils had increased to 36 per cent. He left the ward without permission, as he wanted to go home and rest.

On February 1, nine days after the first admission, he returned to the clinic for a check-up. He still had some muscle soreness and tenderness and complained of moderate malaise and slight undulating fever. He had been in bed throughout his absence. The white count was 6,100 with 36 per cent eosinophils, 40 per cent neutrophils, 24 per cent lymphocytes and 2 per cent monocytes.

On February 8 he seemed to be almost symptom free. Owing to a disagreement with our blood counts and the data of another laboratory, three counts were made the same day.

The last check-up was on February 25, about five and one half weeks after the onset. At that time he was symptom free. The white count was 6,500 with no eosinophils, 60 per cent neutrophils, 36 per cent lymphocytes, 1 per cent basophils and 4 per cent monocytes. The count was taken in the morning.

CASE 4.—J. A. C., a white man aged 22, came into the clinic on Jan. 24, 1939, complaining of severe headache, marked malaise, fever, abdominal discomfort and some aching in the back and legs. He was perfectly well until the previous night. The illness began with abdominal discomfort followed by the other symptoms. He believed he had a slight fever, but there were no chills. To his knowledge he had had no previous attacks. The food history was entirely irrelevant. The respiratory, cardiovascular, gastrointestinal and genito-urinary systems were essentially normal except for mild chronic constipation. The appendix had been removed several years previously.

The patient was well developed and well nourished and he appeared ill. His temperature was 100.5 F. and the pulse rate 88. The skin was warm and dry and the face flushed. There was some suggestion of edema around the eyes. A small amount of tenderness was found over the frontal sinuses, but the head and neck were otherwise normal. The chest was entirely normal. No pathologic abdominal condition was found except a tender palpable colon filled with feces. The muscles of the back and extremities exhibited no tenderness. He was admitted to the ward with a tentative diagnosis of acute infection of the upper respiratory tract and fecal impaction.

An enema gave excellent results. The next morning he was greatly improved. The urine was normal but the blood count revealed 5,000 white cells with 8 per cent eosinophils, 68 per cent neutrophils, 24 per cent lymphocytes and 2 per cent monocytes. He preferred not to take a vermifuge, and since he was symptom free he left the ward late in the afternoon of the second day. Material was not available for a cutaneous test. He left school a few days later and no follow-up was possible. He even refused to return for another blood count. In view of the blood count and the similarity of the symptoms to those of the other patients in the ward at the same time, it was felt that he had suffered a mild attack of trichinosis.

CASE 5.—H. T. S., a white man aged 23, came to the clinic on Jan. 26, 1939, chiefly because of headache, fever and marked malaise. The history was that he ate a pork sandwich about three days previously. About twenty-four hours later he became ill with headache, backache, marked malaise, a low grade fever and marked abdominal discomfort. The previous night he was markedly nauseated but did not vomit. There was no diarrhea at any time. During the previous twenty-four hours the headache and backache had somewhat improved but the fever and malaise had increased. The rest of the history was entirely irrelevant except for a slight cough and tracheal irritation for the last twenty-four hours. There had been no expectoration, dyspnea or other chest complaints. He had never had any illness similar to the present one.

The patient was well developed and well nourished and he appeared ill. His skin was warm and dry and his face flushed, with definite subcutaneous edema about the eyes. The temperature was 102.2 F., the pulse rate 120 and the respiration quite rapid. Careful examination of the rest of the head, throat, chest, abdomen and genitalia was entirely negative. There was no muscle tenderness and the reflexes were normal. He was admitted to the ward with a tentative diagnosis of trichinosis with possible early acute infection of the upper respiratory tract.

A blood count made after admission revealed 4,550 white cells, with 2 per cent eosinophils, 68 per cent neutrophils, 26 per cent lymphocytes and 4 per cent monocytes. The urine revealed only a slight trace of albumin.

The night after admission the patient became very nauseated and had a severe chill followed by a temperature of 103 F. He slept most of the rest of the night and the next morning appeared much improved. There were no respiratory complaints and the other symptoms were greatly alleviated. A new count revealed 8,450 white cells with a differential count of 26 per cent eosinophils, 56 per cent neutrophils, 16 per cent lymphocytes and 6 per cent monocytes. No material was available for a cutaneous sensitivity test for trichinosis but he was given 2.5 cc. of tetrachlorethylene followed by magnesium sulfate.

The next day his face was much less flushed and his only complaint was a slight headache. His temperature was still 101 F. with a pulse rate in proportion. By the fifth day his temperature was entirely normal and he was symptom free. He was discharged, the final diagnosis being trichinosis.

On Feb. 7, eight days after discharge, he returned for a check-up. He was entirely well. The white count was 5,850. The differential count revealed no eosinophils or basophils, 60 per cent neutrophils, 32 per cent lymphocytes and 8 per cent monocytes.

CASE 6.—On Jan. 30, 1939, F. D. S., a white man aged about 20, came in complaining only of marked malaise. He had been perfectly well until the previous day, when he began to feel "rotten all over." A slight headache also developed, and during the night he had several chills and a continuous fever. He also had a slight irritation of the throat and some burning of the eyes. At the time of admission the only remaining complaint was the marked malaise and a slight headache. There were no other eye, nose, throat or respiratory complaints, and the cardiovascular, genito-urinary and gastrointestinal histories were entirely noncontributory. He stated that he ate some type of bologna meat the day before the onset but that there had been no other meat in his diet since he ate beef a week previously. He had had no previous attacks.

The patient was well developed and well nourished and appeared ill. His skin was hot and dry and his face red, with considerable edema around the eyes. The conjunctiva was slightly injected and the pharynx slightly reddened. Moderate cervical adenopathy was present. The rest of the examination was entirely negative. There was no muscle tenderness. His temperature was 102 F. and his pulse rate 110. The blood pressure was 125 systolic, 84 diastolic. The provisional diagnosis was trichinosis.

The urine analysis was essentially negative. The white count was 12,500 with 8 per cent eosinophils. The cutaneous sensitivity test with trichina antigen was positive. Three cc. of tetrachlorethylene was given by mouth followed by magnesium

sulfate. The next day his temperature had dropped to 99 F. The patient felt so much improved that he left the ward without permission before a second count could be taken.

On February 7 (nine days after the onset) he returned for a check-up. He had no complaints or relevant physical evidence. A count revealed 5,000 white cells with 4 per cent eosinophils, 66 per cent neutrophils, 24 per cent lymphocytes and 6 per cent monocytes.

CASE 7.—On Jan. 30, 1939, Miss R. W., aged about 20, white, came to the clinic complaining chiefly of nausea and occasional headaches for the last two days, together with a marked malaise. She ate pork sausage and pork chops the day before the onset. (The chops were well done.) There were no symptoms relative to the head, neck, cardiovascular or respiratory system. There were absolutely no other abdominal complaints. The bowels and stools had been entirely normal. Her appetite had been poor since the onset of the present illness. The patient gave a history of chronic sinusitis and hay fever, but there had been no recent attacks. She had been working very hard in school for the last four weeks.

The patient was well developed and well nourished and she appeared definitely ill. Her temperature was only 99 F., but her pulse rate was 96. The skin was warm and dry with flushing of the face and a suggestion of edema about the eyes. The rest of the head, the chest and the abdomen were entirely normal. The blood pressure was 116 systolic, 80 diastolic. She was admitted to the ward with a tentative diagnosis of overwork and exhaustion and possible trichinosis.

A white count revealed 10,500 white cells with 2 per cent eosinophils, 72 per cent neutrophils, 24 per cent lymphocytes and no monocytes. The urine was normal.

That night she had a large bowel movement which appeared to give symptomatic relief. The temperature remained around 100 F., however, with a rapid pulse. A new count revealed 12,250 white cells with 11 per cent eosinophils, 78 per cent neutrophils, 9 per cent lymphocytes and 2 per cent monocytes. She was given 2.5 cc. of tetrachlorethylene followed by magnesium sulfate.

The next day, February 1, she was greatly improved symptomatically with a normal temperature. A new blood count revealed only 5,950 white cells with 7 per cent eosinophils, 77 per cent neutrophils, 13 per cent lymphocytes and 3 per cent monocytes. She was discharged that evening. No material was available for a cutaneous sensitivity test. The final diagnosis was trichinosis.

On February 8, seven days after discharge, she returned for a check-up. She was symptom free and the white count was 5,000. (The slides for a differential count were accidentally destroyed.)

CASE 8.—On Jan. 31, 1939, D. S. K., a white man aged about 21, came in complaining chiefly of nausea and marked malaise. He was perfectly well the previous day, and in the evening he had eaten rather copiously of a pork roast (his work consisted of kitchen duties), some parts of which were definitely underdone. The symptoms all appeared the next morning. In addition to nausea and malaise, he had a slight frontal headache and some vague abdominal discomfort. He had one loose stool shortly after the appearance of the symptoms but no vomiting at any time. He also had had a slight amount of aching of the back, legs and arms since the onset and also a low grade fever but no chills. There were no other complaints relative to the head, cardiorespiratory, gastrointestinal or genito-urinary tract. The past history was essentially noncontributory.

The patient was well developed and well nourished and looked quite ill. His temperature was 99.8 F. and his pulse rate 100. There were no gross defects or deformities. The skin was warm and dry. The face was flushed, with slight edema of the subcutaneous tissues about the eyes and nose. The head and throat were otherwise normal. There were no abnormal features in the chest or abdomen (not even increased tenderness). A small amount of tenderness of the muscles of the calf, biceps, shoulder and lumbar area was present. He was admitted to the ward with a tentative diagnosis of trichinosis or acute gastro-enteritis.

A blood count revealed 11,500 white cells, with 8 per cent eosinophils, 74 per cent neutrophils, 14 per cent lymphocytes and 4 per cent monocytes. The urine was normal. He was given 3 cc. of tetrachlorethylene followed by magnesium sulfate.

During the night his temperature went to 101.2 F. and his discomfort increased. In the morning his temperature was normal and he looked greatly improved. He had no complaints. A cutaneous sensitivity test with trichina antigen was strongly positive. A new blood count revealed 12,000 white cells with 14 per cent eosinophils. He was symptom free the next day and was discharged. He failed to return for a check-up but remained perfectly well.

CASE 9.—On Feb. 9, 1939, Miss H. B., aged 19, white, consulted us at the clinic because one of our previous patients had come from her sorority. Her only complaints were malaise and some abdominal discomfort for the last forty-eight hours. She had eaten fresh pork forty-eight hours before the onset of the symptoms. The rest of her past history was entirely irrelevant.

The patient was well developed and well nourished and was not acutely ill. The pulse and temperature were normal. There were no gross abnormalities. The face was slightly flushed but there were absolutely no other abnormal features. The chest and abdomen were entirely normal and there was no muscle tenderness.

A count revealed 5,600 white blood cells with 5 per cent eosinophils, 78 per cent neutrophils, 15 per cent lymphocytes and 2 per cent monocytes. She refused to stay in the hospital and left before the count was completed.

She returned the next day and received a cutaneous sensitivity test to trichina antigen. The test was definitely positive. A new count revealed 6,000 white cells with 14 per cent eosinophils, 68 per cent neutrophils, 14 per cent lymphocytes and 2 per cent monocytes. She stated that her symptoms had not changed. She was given 2.5 cc. of tetrachlorethylene by mouth followed by magnesium sulfate. She was in the ward only about six hours. The final diagnosis was trichinosis.

On February 8, six days after her discharge, she returned for a check-up. The white blood count was 7,200. The differential count was reported as unsatisfactory but there was no eosinophilia.

CASE 10.—On Feb. 4, 1939, L. A., a white man aged about 20, came to the clinic complaining chiefly of abdominal pain and discomfort. His illness began about six days previously and first consisted of marked malaise, anorexia and a "heavy feeling." Two or three days after the onset he began to have a mild headache. There were no chills, but he felt that he had a low grade fever at times. He had been trying to play tennis at intervals and his muscles were all sore (from this?). For a week he had had considerable difficulty in reading accompanied by some dull aching around the eyes. He had eaten pork (pork chops) twice in one day about twenty-four to thirty-six hours before the onset of the present illness.

The rest of the history was irrelevant. He had had no constipation, diarrhea, vomiting, abnormal stools, jaundice or other abdominal complaints. (His abdominal complaint was not actual pain but diffuse discomfort.) He had no chronic diseases. There was no history of sinusitis or error of refraction.

The patient was well developed and nourished and there were no gross deformities. His temperature was normal but his pulse rate was 96. The face was flushed and there was a definite circumorbital edema. No tenderness or other pathologic feature was noticed in the sinuses, and the rest of the head was entirely normal. The chest was normal. The abdomen showed only a diffuse tenderness, with no enlarged organs, masses or rigidity. There was definite tenderness of the muscles of the extremities and back. He was admitted to the ward with a tentative diagnosis of trichinosis.

A blood count revealed 10,000 white cells, with 8 per cent eosinophils, 60 per cent neutrophils, 28 per cent lymphocytes, 2 per cent basophils and 2 per cent monocytes. The urine was normal. A cutaneous sensitivity test with trichina antigen was positive. He was given 3 cc. of tetrachlorethylene followed by magnesium sulfate. The next morning his temperature was still normal. The abdominal discomfort was gone, likewise

the tenderness. The aching of the muscles was unchanged. He was allowed to go home and stay in bed.

February 9 (four days later) he returned for a check-up. He had no complaints and most of the muscle tenderness had disappeared. A count revealed 6,400 white cells with 3 per cent eosinophils, 56 per cent neutrophils, 33 per cent lymphocytes and 8 per cent monocytes. On February 25 he came in with malaise (apparently from an acute infection of the upper respiratory tract). His count revealed 6,400 white cells with 3 per cent eosinophils and 70 per cent neutrophils. The final diagnosis of his previous condition was trichinosis.

COMMENT

In studying the cases just presented one easily notes the similarity of the symptoms in all cases. In nearly every instance the onset was chiefly characterized by a marked malaise with some abdominal discomfort. Nausea was usually present, but diarrhea and vomiting were usually absent. Some degree of fever was present in nearly every case, and chills in some. Only in cases 3 and 10, in which (especially the former) the stage of larval migration was being entered, was there any complaint of muscle pain or tenderness. In only one case was there no history of eating pork from one to three days before the onset, and in several cases the pork was not well cooked.

Examination of the patients revealed several noteworthy points: First, the patients all looked and acted quite ill; second, a definite flushing of the face with some degree of edema about the upper part of the face was present; third, all but one complained of generalized discomfort when the abdomen was palpated. The temperature was usually not high. In the two with more advanced infestation (patients 3 and 10, especially the former), muscle tenderness was present.

In all cases in which tests were made there was a positive reaction to the intracutaneous injection of trichinella antigen.² A control test of physiologic solution of sodium chloride was used with every injection. This test was negative or nearly so on the first day of the onset but was definitely positive in all cases by the third day. In case 3 (showing signs of muscle invasion) there was an area of edema and erythema about 4 inches in diameter.

The total white counts were normal or but slightly increased. Eosinophilia was usually not present until the second day after the onset. In the cases treated within the first few days of the illness, all symptoms disappeared within two to four days and the counts were normal within ten days; furthermore, no muscle tenderness developed. Biopsies were requested but refused in every instance. Blood serum from patient 3 was sent to Washington for a precipitation test, but unfortunately the container was broken in transit. Fecal studies revealed no evidence of parasites.

Owing to the fact that no biopsies were made, we cannot definitely say that the cases reported were trichinosis; however, the epidemic-like grouping of the cases, the positive cutaneous reactions, the eosinophilia, the history of eating pork (partially cooked in some instances) and the absence of any other similar condition makes it seem highly probable that trichinella infestation was the cause of the symptoms observed. The symptoms in every case were similar, and all patients appeared within an interval of about ten days, many being in the wards at the same time.

In order to be more certain about the value of the positive skin test, injections were made in a large

2. This was obtained from the National Institute of Health, U. S. Public Health Service, Washington, D. C.

number of cases of sinusitis, gastro-enteritis and other diseases during the next three months. All reactions were entirely negative. Furthermore, no cases of eosinophilia were observed during this time.

It is our belief that the sudden, almost simultaneous, appearance of the entire group of cases was due to a shipment into Tucson of "measly" pork. As soon as the dining halls were advised of the presence of the infestation on the university campus, no more pork was served for over a month; also no more cases developed.

We cannot say that the administration of tetrachlorethylene stopped the progress of the disease. It is possible that the cases so treated were so mild that recovery would have occurred spontaneously with no further symptoms. However, the appearance of muscle pain and tenderness in the two cases in which we were consulted about a week after the onset, and the long drawn out course of case 3, make us believe that the drug actually stopped what may have turned out to be severe infections, preventing the appearance of the second and third stages of the disease.

One further point previously unmentioned is the peculiar tendency for the eosinophil count to increase during the day (in the case of marked muscular involvement). Counts were made on several successive days to verify this. It would appear that muscular action during the day must liberate the foreign protein from the muscles and stimulate the production of the eosinophils. If this change exists in every case, differential counts had best be made at the close of the day.

SUMMARY

1. Of ten patients believed to have been infested with *Trichinella spiralis*, all but one gave a history of eating pork from one to three days before the onset.
2. The condition of eight of these patients was diagnosed within the first three days of the onset. The most common symptoms were malaise, abdominal discomfort, fever, headache, and edema around the eyes. All showed a definite eosinophilia and all tested gave a positive skin reaction with trichinella antigen. Administration of tetrachlorethylene was followed by complete and immediate recovery.
3. The two patients consulting us six and seven days after the onset contracted muscle pain and tenderness; patient 3 showed a fairly long drawn out convalescence.
4. The eosinophil content of the blood was shown to rise continually during the day, being highest in the evening.

Bence Jones Protein.—Bence Jones protein is chemically and immunologically distinct from the other serum proteins. From the work of Meyler it would seem to be a normal constituent of bone marrow, lymphocytes and other white blood cells. A source of Bence Jones protein exists, therefore, under normal conditions and an increase may be expected when large numbers of white cells are destroyed as in empyema or leukemia, or when bone marrow gets into the circulation, as in bone metastases. Nevertheless, even under these conditions, Bence Jones proteinuria occurs very infrequently, which may mean that the body is capable of utilizing or destroying relatively large amounts of this protein. It is only when the amounts produced are excessive and not completely destroyed that a part is excreted in the urine. The excretion of Bence Jones protein is known to have exceeded 50 Gm. per day in several instances. When the quantity excreted is large and of long duration, anatomical injury to the kidneys may be assumed.—Bodansky, Meyer, and Bodansky, Osear: *Biochemistry of Disease*, New York, Macmillan Company, 1940.

VASCULAR DISORDERS OF PERIPHERAL NERVES

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Medical literature has considered instances of peripheral nerve involvement occurring in the course of specific diseases. Yet the concept of neuropathy due to a defective blood supply has not been sufficiently stressed.¹ Recent experience in the wards of Lakeside Hospital with ischemic neuropathy has prompted us to assemble clinical examples which have occurred in a variety of diseases and to group them together under one heading.

ANATOMY

The standard textbooks of anatomy and histology give but brief mention to the vascular supply of peripheral nerves. Ramage² observed that, in the nerve trunks, cords and peripheral nerves of the upper extremity, circulation is maintained through several nutrient arteries. His work substantiates the theory laid down by Quénu and Lejars³ that the blood supply of a peripheral nerve does not come from a single arterial branch but always comes from multiple sources.

Buitink⁴ studied the blood supply of the peripheral nerves in the lower extremity. He determined that it arises from neighborhood vessels, branches of which enter the nerve at various angles and then subdivide into ascending and descending branches. Twigs from these vessels frequently anastomose, providing a network which can be seen in the gross view. Chaumet⁵ has confirmed these observations by roentgenograms of injected specimens. In view of this anastomosis and the free communication of the arterial twigs within the nerve trunk, a nerve lesion of clinical degree could occur only if many twigs in one area were simultaneously affected or if a main branch was occluded. Under the circumstances of a severe diminution in the blood supply there would be a consequent degeneration of the nerve trunk at this level and in that portion of the nerve distal to the site of ischemia. An excellent description of the degenerative changes which follow damage to a peripheral nerve is contained in Hassin's book on neuropathology.⁶

Among the clinical conditions in which damage to peripheral nerves occurs because of vascular disease, the following may be mentioned:

1. Trauma.
2. Embolism.
3. Arteriosclerosis and diabetes mellitus.
4. Thrombo-angiitis obliterans (Buerger's disease).
5. Periarteritis nodosa.
6. Syphilis.
7. Polycythemia vera and other miscellaneous causes.

Dr. J. T. Roberts collaborated, particularly in the matter of several injection and dissection experiments.

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3. Quénu, E., and Lejars, Félix: *Études sur le système circulatoire: les vaisseaux des nerfs*, Paris, G. Steinheil, 1894.

4. Buitink, A. B.: *Ueber die Vascularisation der Nerven der unteren Extremität*, Anat. Anz. **70**: 11-20 (Oct. 22) 1934.

5. Chaumet, G., Heymann, and Mouchet: *Note sur la topographie des artères des nerfs sciatiques*, Bull. et mém. Soc. anal. de Paris **91**: 404, 1921.

6. Hassin, G. B.: *Histopathology of the Peripheral and Central Nervous Systems*, Baltimore, William Wood & Co., 1933.

TRAUMA

Chemical Arterial Injection.—Our concern is not with the ordinary mechanical injuries to peripheral nerves. This subject is well known as the result of civil and wartime injuries and has received adequate presentation, especially in the monograph of Pollock and Davis.⁷ We wish rather to call attention here to a rare lesion caused by trauma to the vasa nervorum. Gammel⁸ reported an instance in which a 48 year old man complained of pain in the foot following an intragluteal injection of bismuth and potassium tartrate. The patient complained of pain radiating from the hip to the sole of the foot and experienced difficulty in raising the ankle. A neurologic consultation by one of us (J. L. F.) revealed a paralysis of the peroneal muscles and diminution of sensation on the dorsolateral aspect of the foot. In the region of injection there was bluish discoloration of the skin of the buttocks. Gammel interpreted the condition as due to an injection into the inferior gluteal artery, which supplies an area of the buttock and also sends a branch to the sciatic nerve (arteria comitans nervi ischiadici). This theory was confirmed by a second case reported by Gammel.⁹ This patient had also received a bismuth injection into the buttock, developed pain in the foot and showed evidence of a paralysis of the calf and intrinsic foot muscles due to involvement of the tibial branch of the sciatic nerve. In this case a biopsy of the skin and subcutaneous tissue revealed bismuth crystals in the vessels and marked inflammatory reaction in the perivascular tissues. Gammel's paper calls attention to similar cases reported by Freudenthal.¹⁰

EMBOLISM

An embolus traveling in the blood stream is a source of danger to the region of the body where it lodges. Fortunately the occurrence of recognizable embolic lesions in peripheral nerves is rare. Large emboli which occlude the main artery to a limb obviously cause more extensive damage than the mere ischemia of peripheral nerves, yet many of the symptoms and signs are explainable by the concomitant neuropathology. Scupham and de Takats¹¹ state "Locally, the characteristic findings are pallor, decreased cutaneous sensation, loss of heat, reduction or absence of reflexes, and paralysis."

McKechnie and Allen¹² have analyzed 100 cases of embolism and thrombosis of the peripheral arteries. Regarding ischemic neuropathy they have written "In cases in which sudden arterial occlusions do not lead to gangrene, the symptoms due to sudden occlusions may merge imperceptibly into those of ischemic neuritis. The pains tend to be paroxysmal and severe and to cover large areas which do not correspond to any definite nerve distribution. They may persist for weeks or months."

Collier,¹³ in his Morison lecture on peripheral neuritis, in discussing neuritis observed during the course of

fevers, stated that ". . . in very many of the cases the clinical picture was that of an isolated lesion of one peripheral nerve trunk, such as could be caused by a local settling of typhoid bacilli or by a vascular lesion. . . . The syndrome has not the aspect of a direct toxic neuritis. It may occur in many febrile conditions and not infrequently in pneumonia toward the crisis, and in this latter condition Hughlings Jackson was in the habit of referring it to a relative asphyxia of the lower nerve elements." Further in this essay, in discussing a type of diabetic neuropathy, he writes "The second variety, much less known and much more serious, is the rapid and painless onset of complete and irrevocable paralysis of one or more large peripheral nerve trunks . . . which was a thrombosis of the artery supplying the nerve trunk. . . ."

We have encountered embolic lesions of peripheral nerves infrequently. However, about a year ago we met this complication in an elderly Negro who was convalescing from type III pneumococcus pneumonia with bacteremia. Several days after the crisis he suddenly complained of inability to move his foot. A neurologic examination showed a loss of power of the peroneal muscle group and of the dorsiflexors of the foot. The muscles in the calf functioned well. There was an area of numbness over the outer portion of the dorsum of the foot. The sudden onset of complete loss of function of the peroneal nerve in a patient who had septicemia is best explained by the occurrence of an embolus to the nutrient artery of this nerve.

Tinel¹⁴ mentioned several instances of neuritis and neuralgias of apoplectic origin. It was his view that tiny hemorrhages might occur in the posterior nerve roots as the result of straining or lifting and thus produce symptoms of radiculitis. He pointed out that the symptoms were neuralgic and had no motor components. He cited two case histories, in one of which there was xanthochromic spinal fluid.

ARTERIOSCLEROSIS AND DIABETES MELLITUS

In Critchley's¹⁵ lecture on "The Neurology of Old Age," several interesting observations are recorded relative to data on older persons which might be considered seriously abnormal in the younger age group. Sensory complaints such as stabbing, darting or aching pains and dysesthesias, particularly in the lower limbs, are quite common. Frequently there is a diminution in the vibratory sensibility, sometimes amounting to almost total loss of this sensation. The author refers to Pearson,¹⁶ who found that there is a slight diminution in sensibility over the lower extremities, which becomes more noticeable decade by decade and may be pronounced after the age of 50. Likewise, appreciation of tactile and painful stimuli may be impaired or even lost. The tendon reflexes tend to become sluggish and may be difficult to elicit. "So frequently does this occur, in the absence of other neurological manifestations, that one is driven to the conclusion that absence of an ankle jerk in old age is without pathological significance." Critchley concludes that changes at all levels may play a role and that the impaired touch sensation is best explained by ". . . changes in the peripheral nerves, probably in the nature of senile or arteriosclerotic polyneuritis." Priestley¹⁷ made histologic studies of the

7. Pollock, L. J. and Davis, Loyal: *Peripheral Nerve Injuries*, New York, Paul B. Hoeber, Inc., 1933.

8. Gammel, J. A.: Arterial Embolism: An Unusual Complication Following the Intramuscular Administration of Bismuth. *J. A. M. A.* 88: 998 (March 26) 1927.

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10. Freudenthal, W.: Medikamentöse Hautembolien (mit Exanthem, Blasenbildung, Gangrän): Embolia cutis medicamentosa (exanthematica, bullosa, gangraenosa) (lokales embolisches Bismutgenol-Exanthem). *Arch. f. Dermat. u. Syph.* 153: 730, 1927.

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12. McKechnie, R. E., and Allen, E. V.: Sudden Occlusion of the Arteries of the Extremities: A Study of One Hundred Cases of Embolism and Thrombosis. *Proc. Staff Meet., Mayo Clin.* 10: 678 (Oct. 23) 1935.

13. Collier, James: *Peripheral Neuritis: Morison Lectures*, Edinburgh M. J. 39: 672 (Nov.) 1932.

14. Tinel, J.: Névrites et névralgies apoplectiformes. *Prat. méd. franç.* 78: 296 (June 2) 1930.

15. Critchley, Macdonald: The Neurology of Old Age (Goulstonian Lecture). *Lancet* 1: 1221 (June 6) 1931.

16. Pearson, G. H. J.: Effect of Age on Vibratory Sensibility. *Arch. Neurol. & Psychiat.* 20: 482 (Sept.) 1928.

17. Priestley, J. B.: The Histopathology of Peripheral Nerves Resected from Extremities Amputated for Arteriosclerotic Gangrene. *Proc. Soc. Meet., Mayo Clin.* 6: 517 (Sept. 2) 1931.

peripheral nerves removed from the amputated extremities in six cases of arteriosclerotic gangrene. He reported "... wallerian degeneration and fibrosis," more marked distally and appearing to be in direct ratio to the amount of arteriosclerosis. In a study of 280 cases of thrombo-arteriosclerosis obliterans, Hines¹⁸ found ischemic neuropathy in twenty-two, or 8 per cent.

Diabetic "neuritis" has been interpreted differently for many years. Recently there has been a general tendency to consider it, at least in a large number of cases, as an ischemic neuropathy in which arteriosclerosis is a fundamental factor (Sandstead and Beams,¹⁹ Needles,²⁰ Grinker,²¹ Woltman and Wilder²²). Clinically it is a painful neuropathy, with varying degrees of hyperesthesia and often extreme cutaneous tenderness (frequently worse at night). The distribution is over the distal portions of the legs and sometimes the forearms. It is uncommon under 40 years of age. Jordan²³ made an extensive review of 226 selected cases of diabetes mellitus with neuritic manifestations, of which seventy-two belong to the degenerative or circulatory type. These occurred in patients over 40 years of age and were accompanied by arteriosclerosis. The condition was usually progressive over a long period of time, although in some instances there was improvement. Woltman and Wilder²² studied the spinal cord and peripheral nerve changes in ten cases of diabetes mellitus. They found degenerative changes in the spinal cord, which were milder than the changes in the peripheral nerves. In nearly all cases there was a thickening of the walls of the intraneural vessels. They conclude "... that the factor of greatest significance in the nerve lesions of diabetes is atherosclerosis." Collier¹³ expressed a similar view: "... since the nerve trunk paralysis is only met with in people who are well above middle age, it is probable that atherosclerosis and the linear calcification of the arteries commonly occurring in diabetes is the fundamental cause of the sudden and final destruction of the large nerve trunk."

Recently Sandstead and Beams¹⁹ found that the oral administration of sodium chloride to diabetic patients suffering with pain of neurocirculatory origin both relieves the pain and improves peripheral circulation (as was measured by the histamine reaction). They write "... this suggests that ischemia, the result of vascular disease, may be the cause of neuritic symptoms."

Because vitamin deficiency has been considered the etiologic agent in diabetic "neuritis," Needles²⁰ studied the vitamin B intake of three patients with this complication of diabetes mellitus. In each he found the vitamin/calory ratio above the required figure and concluded that it was perhaps due to vascular changes in the nutrient arteries to peripheral nerves.

THROMBO-ANGIITIS OBLITERANS

Pain and its control is one of the major concerns of the physician when confronted with a patient suffering from thrombo-angiitis obliterans. Since this clinical entity was first described by Buerger in 1917 the eti-

ology of the pain has been the subject of speculation and research. Buerger²⁴ felt that the pain was due to a fibrosis about the nerve trunks which accompanied diseased vessels.

Brown, Allen and Mahorner²⁵ comment on the increase in perineural connective tissues and also on degenerative changes in the smaller nerves of the toes. They suggest the possibility of long standing ischemia, "approaching the threshold of tissue death" as the cause of these latter changes and of the pain. In a study of amputated extremities, Meleney and Miller²⁶ found complete occlusion of the vasa nervorum in half of the cases. In a clinical correlation these authors state that in every instance there was a history of excruciating pain. They state, however, that there were several patients who suffered severe pain in whose nerves no arterial occlusion was found. (It is possible that the occlusion might not have been discovered or have been the result of partial occlusion of a main arterial trunk.) Goldsmith and Brown²⁷ analyzed the cause of pain in 100 cases of thrombo-angiitis obliterans and considered that ischemic neuritis was present in twelve of that group. A recent contribution by Barker²⁸ consisted of the study of the nerves in seventeen amputated extremities from patients suffering from thrombo-angiitis obliterans. He reported an increase in the perifascicular and intrafascicular fibrosis. Patchy wallerian degeneration, diseased, coiled up and swollen axis cylinders, and some edema and atrophy were seen. Barker did not believe that these changes were due to obstruction of the vasa nervorum but was of the opinion that the nerve lesions came from ischemia as a result of the extensive occlusion of the main arterial trunks. In all cases in which "neuritic" pain occurred there was definite wallerian degeneration of nerves. The lesions were more pronounced than those described by Woltman and Wilder²² in diabetes and by Priestley¹⁷ in the arteriosclerotic group.

SYPHILIS

The role of the vascular changes in syphilis is too well known to require emphasis (Osler,²⁹ Boyd³⁰). Warthin³¹ has devoted considerable attention to the frequency of syphilitic periarteritis, panarteritis and arteritis obliterans of smaller arteries and believes that these occur to a greater or lesser degree. Herrmann³² has described the various types of syphilitic arteritis of the extremities. Sézary³³ has covered the subject of neurosyphilis and stressed the frequency of arteritis as a cause of neurologic manifestation.

Involvement of peripheral nerves in syphilis is not common but has been described. Margulis³⁴ and Papow³⁵ have reported cases of syphilitic neuritis in which pathologic studies showed infiltration of the walls

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25. Brown, G. E.; Allen, E. V., and Mahorner, H. R.: *Thrombo-Angiitis Obliterans*, Philadelphia, W. B. Saunders Company, 1928.

26. Meleney, F. L., and Miller, G. G.: *A Contribution to the Study of Thrombo-Angiitis Obliterans*, *Ann. Surg.* 81: 976 (May) 1925.

27. Goldsmith, G. A., and Brown, G. E.: *Pain in Thrombo-Angiitis Obliterans*, *Proc. Staff Meet., Mayo Clin.* 9: 221 (April 4) 1934.

28. Barker, N. W.: *Lesions of Peripheral Nerves in Thrombo-Angiitis Obliterans: A Clinicopathologic Study*, *Arch. Int. Med.* 62: 271 (Aug.) 1938.

29. Osler, William: *The Principles and Practice of Medicine*, ed. 11, New York, D. Appleton & Co., 1931.

30. Boyd, William: *A Textbook of Pathology*, Philadelphia, Lea & Febiger, 1934.

31. Warthin, A. S.: *Syphilis of the Medium and Smaller Arteries*, New York, M. J. 115: 69 (Jan. 18) 1922.

32. Herrmann, L. G.: *Syphilitic Peripheral Vascular Diseases: Treatment by Means of Intermittent Negative Pressure Environment*, *Am. J. Syph.* 71: 305 (July) 1933.

33. Sézary, A.: *La syphilis du système nerveux*, Paris, Masson & Cie, 1938.

34. Margulis, M. S.: *Ueber syphilitische Polyneuritis*, *Deutsche Ztschr. f. Nervenhe.* 115: 46, 1930.

35. Papow, N. A.: *Ueber die syphilitische Polyneuritis*, *Deutsche Ztschr. f. Nervenhe.* 138: 217, 1935.

18. Hines,
Study of T

13: 694 (Nov. 2) 1938.

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21. Grinker, Roy R.: *Neurology*, ed. 2, Springfield, Ill., Charles C. Thomas, Publisher, 1937.

22. Woltman, H. W., and Wilder, R. M.: *Diabetes Mellitus: Pathological Changes in the Spinal Cord and Peripheral Nerves*, *Arch. Int. Med.* 44: 576 (Oct.) 1929.

23. Jordan, W. R.: *Neuritic Manifestations in Diabetes Mellitus*, *Arch. Int. Med.* 57: 307 (Feb.) 1936.

of the vasa nervorum with plasma cells and lymphocytes, resulting in endothelial thickening. Hassin⁶ mentions the occurrence of syphilitic neuritis. Recently Simon and Berman³⁶ have discussed this subject with thoroughness and reported a case illustrated by photomicrographs. These pictures show unmistakable marked obliterative endarteritis and perivasculitis. They state "Syphilitic polyneuritis may occur in all stages of syphilis and its occurrence is not limited to the early stages. The fundamental pathologic process is panvasculitis, with lymphocytic and plasma cell infiltration in and about the walls of the blood vessels, associated with intimal proliferation, leading to obliterative endarteritis and endophlebitis."

PERIARTERITIS NODOSA

Periarteritis nodosa has neuritic manifestations. The symptom complex of Meyer³⁷ is often quoted: "Chlorotic marasmus, polyneuritis, and polymyositis symptoms . . ." Writers on this subject have placed the incidence of peripheral neuritis at from 20 to 40 per cent (Arkin,³⁸ Curtis and Coffey,³⁹ Kernohan and Woltman⁴⁰). This arterial disease progresses through stages of degeneration, inflammation, granulation and finally fibrosis. Throughout this course thrombosis may occur, resulting in anemia of the organ supplied by such vessels. Ischemia is more apt to occur during the last stages, at which time there are mantles of scar tissue about the arteries. Arkin³⁸ and Kernohan and Woltman⁴⁰ have reported a series of cases in which there was definite peripheral nerve degeneration, proved at autopsy, caused by vascular lesions.

At the Lakeside Hospital, in the service of Dr. J. T. Wearn, there was a white man aged 32 who had entered the hospital complaining of migratory joint pains. Several months later there was a sudden left-sided hemiplegia. On this admission there were pallor, fever and left hemiparesis. This paralytic condition improved gradually and the patient regained the power of the left arm and leg.

On the tenth hospital day he complained of burning pain over the right foot. A day or two later there was weakness in the extension of the toes. Later there was complete paralysis of the dorsiflexors of the foot and of the peroneal muscles. The condition was a typical peroneal paralysis. This paralysis remained unchanged throughout the subsequent course of forty-two days. During this time there were pains in other extremities but no definite evidence of a peripheral nerve lesion. The autopsy (limited to the trunk) confirmed the earlier biopsy reports of periarteritis nodosa. It is very likely that the vessels in the peroneal nerve were gradually obstructed by this disease process.

POLYCYTHEMIA AND MISCELLANEOUS STATES

In polycythemia vera a number of factors are present which predispose to impaired local circulation and to thrombosis. These include an increased blood volume due to the increase in the red cells, decreased circulating minute volume and an increased blood viscosity (Harrop,⁴¹ Haden⁴²). Polycythemia vera is usually accom-

panied by marked arteriosclerosis and also capillary and arteriolar thickening and fibrosis (Reznikoff and Foot⁴³). Most observers who have written on the clinical aspect of polycythemia vera have called attention to the frequent paresthesias and neuritic-like manifestations.⁴⁴ These usually consist of shooting pains and burning sensations in the extremities. The cause of these pains varies from patient to patient, for the lesion may occur at any point between the receptor organs in the skin and the sensory cortex in the cerebrum. There may be stasis in the surface capillaries and venules, which could account for the paresthesias. Interference with the cerebral blood flow, as reported by Christian,⁴⁵ may account for certain of the sensory symptoms.

At the Lakeside Hospital a patient with polycythemia has been studied over a period of years. During his various visits he complained of shooting pains radiating from the medial aspect of the right thigh to the foot. At the first admission the reflexes were intact. Later there was hyporeflexia, which progressed to areflexia in both lower extremities. It is suggested that the circulatory change may explain these evidences of neuritis.

Other types of arterial disease have been associated with neuropathy. Barker and Brown⁴⁶ reported a case of progressive disseminated obliterating arteritis in which wrist drop and partial paralysis of the peroneal nerves of both legs were present. Barker and Baker⁴⁷ reported a case of proliferative intimitis with symptoms of peripheral neuritis and recurring necrotic ulcers of the skin. At autopsy the peripheral nerves showed perineural and intraneural fibrosis and patchy loss of myelin sheaths. The vasa nervorum exhibited the same changes (proliferative intimitis) as did arteries and veins elsewhere in the body.

We observed manifestations of ischemic neuropathy in a patient whose illness was diagnosed as proliferative intimitis. He was a man aged 49 who gave a four day history of excruciating pain in the muscles of the forearms, hands, calves and feet. There was a marked tenderness to palpation of muscles in these areas. During his hospital stay the left patellar and achilles tendon reflexes disappeared and there was a marked diminution in sensation over the distal third of the foot. Because of the pain and early gangrene of the tips of the toes, amputation of this leg was carried out. The histologic picture included endarteritis obliterans with peripheral nerve changes consisting of edema and loss of myelin. When the patient was seen a year later he complained of intermittent stabbing pain and burning in the right leg, symptoms temporarily relieved by such vasodilators as glyceryl trinitrate and amyl nitrite.

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COMMENT AND CONCLUSION

This study indicates that in vascular disease, from whatever cause, peripheral nerve lesions may result with ischemia of nerve tissue as the common etiologic factor. As the causes of vascular pathologic changes are numerous, so the peripheral nerve lesions have been classified under several main headings. We have found such neuropathy in trauma, embolism, arteriosclerosis, Buerger's disease, syphilis, periarteritis nodosa and other states. Involvement of the main arterial trunk to a nerve or the simultaneous lesions in smaller branches and twigs is responsible for such ischemic changes in the nerve.

The local symptoms in each case depend on the nerve involved, the extent of pathologic alteration and the general status of the individual. Treatment should be directed toward the underlying pathologic process as well as to the symptomatic relief of the particular nerve lesion.

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INCIDENCE AND INTERPRETATION OF
DIABETIC-LIKE DEXTROSE
TOLERANCE CURVES

IN NERVOUS AND MENTAL PATIENTS: A STUDY
OF SIXTY-NINE SUCCESSIVE ADMISSIONS
PRELIMINARY REPORT

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The relationship between disorders of the nervous system and the metabolism of the human organism has been the subject of much clinical and experimental study. The discovery of a carbohydrate catalyst, insulin, in 1923 made it possible for Sakel in 1933 to publish his revolutionary monograph on the treatment of schizophrenia with hypoglycemic shock induced by insulin. Appel, Farr and Marshall,¹ Bennett and Semrad,² Ziskind and Somerfeld-Ziskind³ and others have reported beneficial effects from the use of small doses of insulin in various psychotic reactions of both the functional and the organic reaction types. We have observed beneficial effects from small doses of insulin and a high carbohydrate intake on such conditions as mild schizophrenia, psychoneurosis, chronic alcoholism, delirium tremens and arteriosclerotic conditions. We have reported on the use of insulin in the treatment of delirium tremens,⁴ confirming the reports of Klemperer,⁵ Puyuelo Salinas⁶ and others. We have also reported

on the use of insulin as a sedative,⁷ following the original work done by Wegierko.⁸

Sakel⁹ reported on the value of insulin in aiding in the withdrawal of morphine, and his observations have been verified numerous times in this country. While these clinical applications of insulin in nonshock doses were being studied, we were simultaneously investigating the effect of intravenous dextrose (10 per cent) in the various delirious phenomena, especially the so-called confusional states of old age.¹⁰ This work has been confirmed by Larson and his associates,¹¹ who showed that the nutritional effect of the dextrose was the real beneficial agent and that the benefit was not due to the fluids which overcome the general organism dehydration or the hypertonic effects of hyperglycemia, which reduces cerebral edema. The dextrose provides needed nourishment, generally and locally, thereby correcting certain metabolic disturbances and reversing certain secondary pathologic states in the brain.

Insulin is the activating carbohydrate metabolism hormone, and intravenous dextrose in 10 per cent solution is the most effective way to provide the patient who is deficient in available carbohydrates with the only energy-producing food used by the brain—dextrose. Our interpretation of these mechanisms has been discussed in previous reports.¹² It seemed necessary from these observations to study our patients from the standpoint of basic physiology, to try to determine whether carbohydrate metabolism was disturbed and, if possible, how and why. It is our purpose in this paper to present a preliminary report of these studies.

We felt that the basic ability of the organism to utilize dextrose must be impaired in some way if these stimulations to carbohydrate metabolism brought about improvement in our patients. Carbohydrate metabolism is a progressive process from ingestion through absorption, storage, availability and oxidation to the usual end products of carbon dioxide and water. According to Chambers,¹³ the simplest chemical test available at this time to study the integrity of the whole mechanism is the dextrose tolerance test. We selected the four hour test, as outlined by Gradwohl,¹⁴ as our investigative method so that the reaction might be studied throughout its course. We tested specimens of urine for sugar according to the Sheftel¹⁵ method. Blood and urine determinations are made in this test after ingestion of 100 Gm. of dextrose in an aqueous solution. A fasting test is made and specimens are drawn at one-half, one, two, three and four hour intervals after a test meal. Samples of urine are collected at the same time. A normal dextrose tolerance test rises about 75 points above the fasting level in thirty minutes, falls sharply about 25 points in the next half hour and then gradually returns to the fasting level within four hours. There is no glycosuria at any time during the test. There are individual variations of this curve.

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TABLE 1.—Blood * and Urine † Sugar Determinations

Patient	Date	Specimen	Fast-ing	½ Hr.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	Patient	Date	Specimen	Fast-ing	½ Hr.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.
1. C. A.	7-6-30	Blood	84.0	131.2	160.0	113.0	05.2	83.3	22. H. K.	11-5-30	Blood	70.4	147.0	200.0	186.0	80.0	02.2
	7-15-30	Urine	Neg.	Neg.	3 plus	2 plus	Neg.	Neg.		11-10-30	Urine	0.5	0.15	0.15	5.75	0.75	Trace
		Blood	101.5	152.7	165.7	100.5	153.8	100.0	23. D. K.	10-7-30	Blood	78.1	109.9	108.1	45.5	00.0	06.7
		Urine	Neg.	Neg.	Trace	Neg.	Neg.	Neg.		11-30-30	Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
2. R. A.	10-2-30	Blood	81.6	148.1	93.0	109.3	105.3	64.5		10-7-30	Urine	74.9	153.8	178.6	71.7	74.1	50.1
	10-17-30	Urine	N. S.	N. S.	0.25	Neg.	Neg.	Neg.		11-30-30	Blood	Neg.	Neg.	0.25	Neg.	Neg.	Neg.
		Blood	76.9	114.3	91.3	110.3	101.0	77.5	24. H. L.	8-26-30	Blood	75.5	144.9	119.7	119.0	60.1	71.3
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		11-30-30	Urine	Neg.	N. S.	0.3	0.15	Neg.	N. S.
3. G. A.	10-3-30	Blood	41.7	129.0	71.4	40.0	42.8	61.4		8-26-30	Urine	84.4	190.5	223.0	225.3	133.8	97.4
	10-28-30	Urine	0.25	1.0	0.25	Neg.	Neg.	Neg.		0-12-30	Blood	Trace	Trace	Trace	1 plus	1 plus	Neg.
		Blood	78.1	143.9	135.1	66.0	51.9	70.9	25. R. L.	0-12-30	Urine	76.9	131.6	185.2	166.7	65.6	55.8
		Urine	Trace	0.25	0.2	Neg.	Neg.	Neg.		7-31-30	Blood	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
4. A. B.	10-2-30	Blood	63.0	230.0	153.8	144.9	72.7	51.5		8-19-30	Urine	71.4	84.0	117.6	97.1	55.5	64.3
	11-1-30	Urine	Neg.	0.2	0.25	0.25	Neg.	Neg.			Blood	Trace	Trace	Trace	1 plus	1 plus	1 plus
		Blood	60.9	135.1	125.8	102.0	68.5	57.1	26. J. M.	11-7-30	Urine	62.5	117.6	57.7	66.4	61.2	42.5
		Urine	Trace	0.2	Trace	Neg.	Neg.	Neg.		11-7-30	Blood	Trace	Trace	1 plus	Trace	Trace	Trace
5. W. B.	9-1-30	Blood	114.3	163.9	227.3	190.5	129.8	40.0		11-7-30	Urine	08.5	130.7	121.5	94.6	65.8	83.7
	9-19-30	Urine	Slight	Trace	3 plus	2 plus	1 plus	Slight		12-1-30	Blood	Neg.	Neg.	0.2	0.2	0.2	N. S.
		Blood	Trace	Trace	3 plus	2 plus	1 plus	Trace	27. W. M.	12-1-30	Urine	78.4	97.6	126.6	102.5	52.6	72.7
		Urine	80.0	110.5	86.9	85.1	67.1	74.1		7-30-30	Blood	Neg.	Neg.	0.15	0.10	Neg.	N. S.
		Urine	Trace	Trace	Neg.	Neg.	Neg.	Neg.		7-30-30	Urine	71.4	153.8	166.7	109.0	77.8	61.3
6. L. B.	11-5-30	Blood	74.1	122.0	115.6	76.3	64.9	65.4		10-7-30	Blood	Neg.	Neg.	1 plus	1 plus	Neg.	Neg.
	12-1-30	Urine	Neg.	N. S.	Neg.	N. S.	Neg.	Neg.		10-7-30	Urine	72.7	116.5	151.5	94.3	52.6	60.0
		Blood	80.5	145.3	144.9	101.5	74.9	81.0	28. F. P.	9-2-30	Blood	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
		Urine	Neg.	N. S.	Trace	Neg.	Neg.	Neg.		11-13-30	Urine	82.0	175.4	250.0	173.9	76.3	47.4
7. H. B.	7-4-30	Blood	100.0	126.0	121.0	111.7	97.6	85.8		11-13-30	Blood	Trace	1 plus	2 plus	N. S.	N. S.	2 plus
	9-4-30	Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		11-13-30	Urine	78.4	131.6	114.3	60.9	47.1	50.1
		Blood	66.2	90.9	62.0	71.4	38.0	60.0	29. M. P.	9-3-30	Blood	Neg.	Neg.	Neg.	Neg.	N. S.	Neg.
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		11-8-30	Urine	65.6	160.0	250.0	156.2	73.5	56.6
8. F. C.	7-3-30	Blood	01.3	166.7	175.4	142.8	123.5	105.4		11-8-30	Blood	Trace	Trace	3 plus	4 plus	1 plus	Neg.
	8-28-30	Urine	Neg.	Neg.	Neg.	2 plus	Neg.	Neg.		11-8-30	Urine	69.0	133.3	N. S.	125.0	74.1	50.8
		Blood	60.6	66.1	99.0	67.6	60.6	46.0	30. W. P.	10-10-30	Blood	N. S.	N. S.	N. S.	Neg.	Neg.	Neg.
		Urine	Neg.	Trace	Neg.	Neg.	Neg.	Neg.		10-10-30	Urine	77.3	121.9	152.7	143.9	90.9	72.1
9. W. C.	7-29-30	Blood	78.5	149.2	181.8	146.0	85.1	58.8		11-30-30	Blood	Neg.	N. S.	0.25	N. S.	1.0	0.25
	8-23-30	Urine	1 plus	2 plus	3 plus	4 plus	2 plus	Neg.		11-30-30	Urine	79.9	121.0	105.3	129.6	120.0	N. S.
		Blood	76.9	139.8	169.5	07.8	N. S.	66.8	31. N. R.	11-4-30	Blood	01.5	142.8	136.0	124.2	67.1	100.9
		Urine	Trace	2 plus	Trace	1 plus	Neg.	Neg.		12-1-30	Urine	0.2	N. S.	0.2	N. S.	Trace	N. S.
10. J. C.	0-5-30	Blood	70.2	138.0	235.3	161.3	51.7	129.0		12-1-30	Blood	78.4	107.5	148.1	102.6	114.3	61.9
	10-10-30	Urine	1 plus	N. S.	N. S.	N. S.	N. S.	N. S.	32. D. R.	7-30-30	Urine	N. S.	N. S.	N. S.	N. S.	N. S.	Neg.
		Blood	84.7	128.2	140.8	97.6	51.5	63.9		11-17-30	Blood	148.1	210.5	235.0	250.0	230.0	133.5
		Urine	Neg.	Trace	0.1	Trace	Neg.	Neg.		11-17-30	Urine	2 plus	2 plus	N. S.	N. S.	N. S.	N. S.
11. M. D.	0-28-30	Blood	88.9	142.8	227.3	235.3	160.0	126.6		11-17-30	Blood	91.3	104.2	163.9	95.2	103.0	108.1
	9-2-30	Urine	Neg.	Neg.	Neg.	2 plus	1 plus	1 plus		11-17-30	Urine	Neg.	N. S.	N. S.	Trace	N. S.	N. S.
		Blood	66.0	93.0	137.0	117.5	38.5	57.1	33. D. S.	9-8-30	Blood	82.6	170.9	200.0	200.0	114.3	50.3
		Urine	Slight	N. S.	Trace	Slight	Slight	Slight		11-14-30	Urine	0.25	0.25	N. S.	4.0	3.0	2.0
		Urine	Trace	Trace	Trace	Trace	Trace	Trace		11-14-30	Blood	76.9	129.6	139.0	93.4	53.0	57.0
12. T. D.	0-25-30	Blood	85.5	158.3	203.9	226.1	170.4	81.5		11-14-30	Urine	Trace	0.15	0.15	Trace	Trace	Neg.
	10-14-30	Urine	1 plus	2 plus	3 plus	4 plus	4 plus	2 plus	34. L. S.	9-5-30	Blood	67.3	108.1	102.0	97.6	87.7	93.0
		Blood	97.6	168.0	183.5	85.1	62.5	81.6		0-21-30	Urine	Trace	N. S.	N. S.	Trace	N. S.	N. S.
		Urine	Neg.	0.1	0.2	0.5	Neg.	Neg.		0-21-30	Blood	60.6	78.4	108.1	85.5	N. S.	N. S.
13. F. D.	0-14-30	Blood	104.2	161.4	201.1	105.1	65.6	116.3		0-21-30	Urine	Neg.	N. S.	Neg.	Neg.	N. S.	N. S.
	10-18-30	Urine	Neg.	Neg.	1 plus	1 plus	1 plus	1 plus	35. E. S.	7-21-30	Blood	88.9	150.3	150.3	220.3	276.2	125.5
		Blood	85.1	181.8	217.4	160.0	109.9	51.7		8-3-30	Urine	Neg.	Trace	1 plus	2 plus	2 plus	Neg.
		Urine	Neg.	Trace	1.0	0.75	Trace	Neg.		8-3-30	Blood	82.3	151.5	200.0	196.0	63.3	54.3
14. A. F.	9-18-30	Blood	90.9	114.3	142.8	N. S.	N. S.	N. S.		10-3-30	Urine	Trace	Trace	2 plus	3 plus	Neg.	Neg.
	9-23-30	Urine	Trace	N. S.	N. S.	N. S.	N. S.	N. S.	36. S. S.	10-3-30	Blood	50.0	66.7	185.2	133.9	76.9	69.0
		Blood	83.3	116.3	N. S.	147.0	124.2	121.2		10-3-30	Urine	Trace	Trace	0.25	1.0	Trace	Trace
		Urine	Trace	Trace	0.15	0.15	0.15	Neg.		10-28-30	Blood	87.7	88.1	88.5	104.7	77.2	51.7
15. W. G.	7-21-30	Blood	70.7	198.1	168.0	148.1	110.5	60.6		10-28-30	Urine	Trace	Trace	Trace	Trace	Trace	Trace
	11-30-30	Urine	N. S.	1 plus	N. S.	1 plus	Neg.	Neg.	37. C. W.	8-17-30	Blood	59.7	132.4	175.0	88.9	93.1	43.0
		Blood	80.6	107.5	181.8	73.3	68.0	64.5		8-17-30	Urine	Slight	Slight	3 plus	3 plus	2 plus	1 plus
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		9-5-30	Blood	Trace	Trace	Trace	Trace	Trace	Trace
16. F. H.	0-7-30	Blood	77.0	112.4	175.0	160.0	117.6	71.4		9-5-30	Urine	1 plus	1 plus	1 plus	1 plus	1 plus	Trace
	11-8-30	Urine	Trace	Trace	Trace	0.5	Neg.	Neg.	38. J. W.	9-15-30	Blood	74.1	130.7	181.8	105.3	63.5	71.9
		Blood	69.9	122.7	178.0	108.1	65.1	47.4		9-15-30	Urine	77.5	99.7	97.6	69.0	89.3	81.6
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		11-29-30	Blood	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
17. L. H.	10-25-30	Blood	86.9	130.7	129.0	90.0	70.4	67.8		11-29-30	Urine	74.0	102.6	119.0	80.9	80.5	61.9
	12-1-30	Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		10-22-30	Blood	Neg.	Neg.	Trace	Neg.	Neg.	Neg.
		Blood	99.5	136.0	141.8	111.7	57.6	55.5	39. L. C.	10-22-30	Urine	95.0	106.9	97.1	81.0	71.2	83.0
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.		10-22-30	Blood	0.25	N. S.	N. S.	Neg.	N. S.	Trace
18. A. H.	8-11-30	Blood	83.3	129.0	223.0	124.0	57.0	66.9		10-22-30	Urine	0.25	N. S.	N. S.	Neg.	N. S.	Trace
	0-3-30	Urine	Slight	Trace	1 plus	3 plus	2 plus	1 plus	40. J. C.	8-18-30	Blood	76.3	129.0	187.0	140.8	72.7	60.6
		Blood	Trace	Trace	Trace	Trace	Trace	Neg.		8-18-30	Urine	Trace	Trace	Trace	Trace	Trace	Neg.
		Urine	63.5	125.0	129.0	114.3	54.5	39.6	41. C. C.	10-10-30	Blood	77.5	117.3	134.7	80.0	112.4	55.5
19. F. J.	8-13-30	Blood	69.0	114.3	185.0	131.5	75.5	74.1		10-10-30	Urine	Trace	Trace	Trace	Trace	Trace	Neg.
	10-1-30	Urine	1 plus	N. S.	2 plus	2 plus	2 plus	2 plus		6-24-30	Blood	90.5	122.7	129.0	144.2	70.2	89.9
		Blood	73.2	185.2	181.8	N. S.	N. S.	N. S.	42. I. C.	6-24-30	Urine	Neg.	N. S.	N. S.	N. S.	N. S.	Neg.
		Urine	Neg.	Neg.	0.2	Neg.	Neg.	Neg.	43. H. D.	8-26-30	Blood	64.9	169.5	166.7	137.9	123.5	61.5
20. G. J.	10-9-30	Blood	93.9	137.9	190.5	153.8	72.7	41.0		8-26-30	Urine	Slight	Trace	1 plus	1 plus	Neg.	Neg.
	11-1-30	Urine	0.25	N. S.	0.3	5.0	2.0	Trace	44. M. D.	8-3-30	Blood	95.2	169.0	206.0	197.0	169.0	117.5
		Blood	77.8	166.9	115.3	137.9	108.1	49.3		8-3-30	Urine	1 plus	N. S.	N. S.	N. S.	N. S.	N. S.
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.	45. T. D.	9-13-30	Blood	74.9	129.0	113.0	112.4	75.1	77.2
21. N. K.	7-8-30	Blood	95.2	123.5													

TABLE 1.—Blood* and Urine† Sugar Determinations—Continued

Patient	Date	Specimen	Fasting	½ Hr.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.	Patient	Date	Specimen	Fasting	½ Hr.	1 Hr.	2 Hrs.	3 Hrs.	4 Hrs.
47. L. F.	10-9-39	Blood	93.0	161.3	170.9	129.0	166.9	66.6	59. A. M.	7-27-39	Blood	61.5	125.8	130.7	86.9	81.6	45.4
		Urine	Neg.	Neg.	N. S.	Neg.	N. S.	N. S.			Urine	3 plus	N. S.	N. S.	N. S.	Neg.	Neg.
48. B. F.	10-22-39	Blood	68.0	138.9	192.3	191.2	190.5	88.9	60. J. N.	10-22-39	Blood	85.5	150.4	129.8	70.2	70.4	60.1
		Urine	Trace	N. S.	N. S.	N. S.	1.25	N. S.			Urine	Neg.	0.25	0.5	0.2	Neg.	Neg.
49. Geo. G.	9-19-39	Blood	75.5	129.0	121.2	93.0	44.1	66.6	61. B. P.	7-30-39	Blood	93.0	196.1	250.0	222.2	113.6	78.5
		Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.			Urine	1 plus	N. S.	4 plus	4 plus	2 plus	Neg.
50. Gl. G.	10-11-39	Blood	71.9	140.8	72.6	66.4	89.3	88.9	62. C. P.	7-24-39	Blood	108.1	152.7	200.0	210.5	117.6	70.4
		Urine	N. S.	Neg.	Neg.	Neg.	Neg.	Neg.			Urine	N. S.	N. S.	N. S.	2 plus	3 plus	2 plus
51. C. H.	10-22-39	Blood	90.9	128.2	149.2	188.7	181.8	109.0	63. W. S.	8-24-39	Blood	64.7	140.8	95.2	86.7	49.3	63.8
		Urine	Neg.	N. S.	Neg.	1.0	0.5	0.2			Urine	1 plus	1 plus	1 plus	1 plus	1 plus	Trace
52. I. H.	9-18-39	Blood	235.2	327.8	400.0	392.2	344.8	320.0	64. M. S.	11-5-39	Blood	128.2	183.5	212.8	235.3	201.5	194.2
		Urine	5.0	4.0	6.0	6.0	6.0	5.5			Urine	N. S.	N. S.	N. S.	N. S.	N. S.	N. S.
53. M. J.	7-14-39	Blood	135.5	190.5	205.0	392.2	256.0	210.5	65. W. S.	9-4-39	Blood	68.5	193.5	190.5	165.3	62.5	50.0
		Urine	2 plus	3 plus	3 plus	4 plus	4 plus	4 plus			Urine	Trace	Trace	2 plus	3 plus	Trace	Slight Trace
54. W. K.	10-19-39	Blood	72.7	121.2	118.3	118.3	102.6	47.6	66. A. S.	9-18-39	Blood	61.0	116.3	136.0	97.0	60.6	82.3
		Urine	Trace	Trace	Trace	Trace	Trace	Trace			Urine	Neg.	N. S.	N. S.	N. S.	0.25	N. S.
55. T. L.	7-17-39	Blood	114.3	190.5	246.9	137.9	122.0	86.2	67. T. S.	9-23-39	Blood	90.9	153.8	138.8	97.1	53.3	71.4
		Urine	1 plus	N. S.	1 plus	N. S.	1 plus	N. S.			Urine	Neg.	Neg.	Neg.	Neg.	Neg.	Neg.
56. F. M.	7-8-39	Blood	82.6	163.9	222.2	142.8	140.8	113.6	68. J. W.	8-26-39	Blood	74.1	180.5	190.5	142.8	50.0	40.0
		Urine	Neg.	Neg.	3 plus	2 plus	1 plus	1 plus			Urine	Trace	1 plus	2 plus	2 plus	1 plus	Slight Trace
57. E. M.	9-28-39	Blood	51.7	100.0	55.1	48.7	35.0	56.6	69. C. Z.	10-21-39	Blood	72.2	72.7	69.0	82.3	69.7	76.9
		Urine	N. S.	N. S.	N. S.	N. S.	N. S.	N. S.			Urine	Neg.	N. S.	Neg.	Neg.	Neg.	Neg.
58. J. M.	6-30-39	Blood	93.4	198.1	200.0	217.4	100.0	66.6									
		Urine	N. S.	N. S.	4 plus	N. S.	4 plus	N. S.									

* Blood sugar determinations given in milligrams of sugar per hundred cubic centimeters of whole blood.

† Urine sugar determinations given in (a) plusses (Benedict's qualitative) and in (b) per cent (Shelfet method).

‡ No specimen obtained.

Successive tests were made and from these comparisons we have been able to determine a rough estimate of the state of carbohydrate metabolism at the time of admission and the improvement in this factor during the clinical course of the patient. Normal results indicate proper absorability from the gastrointestinal tract, normal passage through the liver, which takes up some but not all of the test meal, a normal mechanism for storing the excess blood dextrose as glycogen, and a normal oxidation of the dextrose in the tissues by the cells.

Variations from the normal in the curve do not indicate which factor is disturbed but only that some factor or factors are not functioning normally and that therefore carbohydrate metabolism, viewing the mechanism as a whole, is abnormal.

The interpretation of these curves has been difficult, since clinical studies on neuropsychiatric patients from this standpoint have not been done extensively. The chief use of the dextrose tolerance test in clinical medicine has been the determination of the presence or absence of diabetes mellitus. One of the latest reviews of the subject from this standpoint has been presented by Matthews and his associates.¹⁶ They discuss the one hour-two dose tolerance test and its interpretation from the standpoint of the diagnosis of diabetes. Their comment is this: "Other causes of hyperglycemia being absent, a disturbance of the ability of the organism to prevent elevation of the blood sugar above what Hansen called the 'optimum concentration' ought to represent a criterion of diabetes mellitus." Hansen¹⁷ used the term "optimum concentration" to designate the upper limit or blood sugar ceiling above which the blood sugar would not rise in normal individuals because of fluctuations in the activity of the regulation mechanism.

These other causes have been given but little consideration in discussions of this test in clinical literature. Diabetic and diabetic-like curves are common in nervous

and mental patients. Table 1 shows our results on sixty-nine successive admissions. The first part of the table gives those in follow-up tests, while the second part is made up of those cases on which follow-up tests could not be made.

Table 2 shows the result of our application of three different criteria of interpretation of curves from the standpoint of the diagnosis of diabetes mellitus and other accepted types of glycosuria to the results in our series.

It is hardly conceivable that this high percentage of nervous and mental patients taken as they applied for treatment should have true diabetes mellitus or permanent hypo-insulinism. Only four of these patients had a fasting blood sugar in excess of 120 mg. per hundred cubic centimeters, but according to these interpretations of the dextrose tolerance curves from 39.9 to 62.3 per cent of the patients could be considered to have diabetes. All three of these criteria are methods advanced to simplify the classic procedure so as to eliminate some of the tests.

This group of patients had a variety of treatments which included insulin and metrazol shock, intravenous infusions of dextrose, insulin in small doses for metabolic and sedative purposes, thiamine hydrochloride and general hygienic help. Only one patient received definite treatment for diabetes. She had a fasting blood sugar of more than 200 mg. per hundred cubic centimeters consistently and had been treated for diabetes a number of years before she came under our care.

The clinical diagnoses of this group of cases included schizophrenia, manic depressive types, senile psychoses, alcoholism and other addictive states. Each clinical type was represented in the groups that could be interpreted as having a diabetic type tolerance curve. In many cases follow-up tests were made after an interval of a few weeks. Table 3 shows the results of the application of the foregoing three criteria to our follow-up tests.

It will be seen that, regardless of which criterion of interpretation is used, from 25.8 to 55.5 per cent of these curves return to normal under treatment that generally is not accepted as the proper treatment for diabetes mellitus. Those patients who showed improvement in their curves invariably showed symptomatic

16. Matthews, M. W.; Magath, T. B.; Berkson, Joseph, and Gage, R. P.: The One Hour-Two Dose Dextrose Tolerance Test (Exton-Rose Procedure), J. A. M. A. 113: 1531-1537 (Oct. 21) 1939.

17. Hansen, K. M., cited by Faler, K.: Benign Glycosuria Due to Disturbance in the Blood Sugar Regulating Mechanism, J. Clin. Investigation 3: 203-227 (Dec.) 1926.

improvement in the psychotic manifestations which were present at the time of admission. Some of the other patients who showed little improvement in their curves showed a complete psychotic remission, but follow-up tests in the future may show some improvement in their curves.

We feel that these abnormal curves result from malnutrition. The nervous and mental patient usually goes through a prolonged period before admission when hygienic habits are poor, diets are improper and various food superstitions are followed. General metabolism is frequently poor and malnutrition is a prominent feature. Physiologists have known for some time that carbohydrate metabolism is a mechanism of many factors, not simply the biochemical interplay of dextrose and insulin. We quote the opening paragraphs of Chambers' ¹² recent comprehensive review:

Undernutrition is used in a broad sense in this paper to include complete inanition as well as the dietary deficiencies. Fasting has been recognized as a factor in carbohydrate metabolism since 1873, but the greatest expansion of the entire field

TABLE 2.—Interpretation of Tests by Proposed Criteria

	A		B		C	
	Number	Per Cent	Number	Per Cent	Number	Per Cent
Total number of patients.....	69	100	69	100	69	100
Normal or non-diabetic.....	8	11.6	44	63.7	31	45.1
Diabetic or latent diabetic.....	42	60.8	25	36.3	23	40.5
Presumptive diabetic.....	(1)	....	(1)	....	10	14.4
Renal glycosuria	11	16.0	(1)	....	(1)	....
Alimentary glycosuria.....	8	11.6	(1)	....	(1)	....

(1) Not included in this interpretation.

A, according to the criteria of Exton and Rose (Diabetes as a Life Insurance Selection Problem, *Proc. A. Life Insur. M. Dir. America* 18: 232-266, 1931).

B, according to the criteria of Gould, Altschuler and Mellen (The One Hour-Two Dose Glucose Tolerance Test in the Diagnosis of Diabetes Mellitus, *Am. J. M. Sc.* 1937: 611 [May] 1937).

C, according to the criteria of Matthews, Magath, Berkson and Gage.¹⁰

has occurred in the past fifteen years. During this time the endocrine control of carbohydrate metabolism has been developed and now occupies a position of major importance. An attempt to correlate the studies of undernutrition and the endocrine research has led to the following generalizations concerning carbohydrate utilization.

The maximum utilization of administered glucose is found in the normal individual when carbohydrate has been abundantly supplied in the diet. The minimum effect is obtained in the completely depancreatized animal which excretes all of the ingested sugar in the urine. Between these extremes is a series of less sharply defined intermediate stages. As the amount of carbohydrate in the diet is diminished the glucose tolerance test indicates a decreased utilization. During complete inanition there is a progressive deprivation of the carbohydrate stores in the body and an increasingly larger fraction of the test meal is lost by excretion as the fast continues. A more drastic and exaggerated condition is seen in the animal depleted by phlorhizin glycosuria. Approaching pancreatic diabetes at the lower end of the scale are the various stages of diabetes mellitus and the endocrine disturbances involving the pituitary and the adrenal. Of the many factors exerting a controlling influence on the different degrees of carbohydrate utilization as outlined, the importance of two is apparent—the amount of carbohydrate available to the cells and the endocrine control. The former seems to predominate at the beginning of the series but is superseded by the latter toward the minimum end. The literature presented in this review will give the evidence supporting these generalizations, with particular emphasis on the nutritional condition with respect to carbohydrate.

The conception of carbohydrate metabolism outlined above is based on the measurement of the body's ability to utilize carbohydrate, as determined by its reactions for several hours after the administration of pure glucose. When a glucose test meal is ingested sufficient in amount to maintain the maximum rate of absorption from the intestines for several hours, the total heat production of the body indicates that in the normal well-fed organism only about one-quarter to one-third of the absorbed sugar can be oxidized to CO₂ and H₂O. The major portion of the remainder is probably stored as glycogen, but conversion into fat, glycolysis to lactic acid, transformation into hexosephosphate, glycerophosphate, glucosamine, or other compounds may also occur. These reactions may be observed in several ways. The method most extensively used for the study of carbohydrate metabolism has been the glucose tolerance test in which the rise and fall in blood sugar concentration are determined for several hours after the administration of sugar. This test is most useful in showing small differences in utilization. It should be remembered that the blood sugar changes reflect the rate but not the nature of glucose utilization. If the impairment is large enough, information as to the total amount utilized may be obtained from the quantitative collection of the fraction excreted by the kidney. The most direct evidence for oxidation comes from carefully conducted determinations of the respiratory metabolism sufficient in duration to yield combustion quotients when interfering changes in the body are adequately controlled (Richardson, 1929). Tissue analyses yield data concerning glycogen deposition and other methods of disposal. All of these reactions must be considered in establishing a complete picture of carbohydrate utilization. The terms "utilization" and "oxidation" have been used synonymously in some of the recent literature. This is obviously inexact in short experiments.

Lehman ¹⁸ in 1873 and Claude Bernard ¹⁹ in 1877 showed that fasting animals had a glycosuria. This condition was termed "hunger diabetes" by Hofmeister ²⁰ in 1890. Bang ²¹ showed that dextrose tolerance curves were disturbed in fasting animals, while Staub ²² showed that low carbohydrate-high fat-protein diets had the same effect. All this work has been confirmed experimentally and clinically many times.

From this background of physiologic observations it is easy to understand how neurotic, overanxious types, those who diet to lose weight, diet faddists in general or those who suffer from anorexia during physical or mental illness may upset their carbohydrate metabolism balance with depletion of reserves, suppression of secretion of body insulin and the development of toxic states from improperly metabolized fats and proteins.

Diethelm, ²³ Wittkower, ²⁴ McCowan ²⁵ and Tod ²⁶ have made reports on the disturbed dextrose tolerance found in certain abnormal emotional states and various psychotic reactions. The conclusions in the past have always been that the disturbance of the dextrose tolerance curve, signifying an abnormal utilization of dextrose, was the result of the mental condition being studied and that it had no etiologic significance. However, it is hardly necessary to point out that there is at this time no universally or even widely accepted single theory as to the "cause" of various abnormal mental reactions known as the psychoses or the neu-

18. Lehman, W. L.: Dissertation, Amsterdam, 1873; abstr. *Arch. Exper. Path. u. Pharmacol.* 2: 463, 1874.

19. Bernard, Claude: *Leçons sur le diabète*, Paris, 1877.

20. Hofmeister, F.: *Arch. f. exper. Path. u. Pharmacol.* 20: 355, 1890.

21. Bang, Ivar: *Der Blutzucker*, Wiesbaden, 1913.

22. Staub, H.: Untersuchungen über den Zuckerstoffwechsel des Menschen. *Ztschr. f. klin. Med.* 93: 89 (Jan.) 1922.

23. Diethelm, Oskar: The Influence of Emotions on Dextrose Tolerance. *Arch. Neurol. & Psychiat.* 22: 342 (Aug.) 1936.

24. Wittkower, Erich: The Influence of Emotions on Somatic Functions. *J. Ment. Sc.* 81: 533 (July) 1935.

25. McCowan, P. K.: Manic-Depressive Psychosis—Symposium; Hyperglycemic Index as Aid in Prognosis. *J. Ment. Sc.* 82: 589 (Sept.) 1936.

26. Tod, Henry: Studies in Carbohydrate Metabolism in Mental Disorders. *Edinburgh M. J.* 43: 524 (Aug.) 1936.

roses. Therefore no factor can be ignored, whether it is psychologic, physiologic or biochemical. Relatively little is known definitely about the metabolism of the brain. Himwich and Nahum²⁷ and Himwich and Bowman and their associates²⁸ have shown that the brain in health uses only dextrose as its fuel, although in certain disease states a small amount of lactic acid may be utilized. They have further found that the metabolism of the brain is decreased in all the delirious conditions which they have investigated.²⁹ The rate of utilization of dextrose is high, amounting to about 14.6 mg. per hundred cubic centimeters or 10 per cent of all dextrose used by the body, and about 90 per cent of this 10 per cent is used by the cortical cells. Kerr and Ghantus³⁰ concluded that the brain cannot store a reserve of glycogen as can other tissue and that there must be a constant supply of sugar to the brain in order to maintain the level of free sugar so that constant, continuous, healthy metabolism may proceed. In addition to dextrose, the brain requires an adequate amount of oxygen (7.4 volumes per cent) and enzymes, and a marked variation from normal in either dextrose, oxygen or enzymes produces a pathologic condition in the brain. It is certainly not illogical to assume, therefore, that disturbed carbohydrate metabolism of the organism as a whole can and will disturb the functioning ability of the brain to some degree. It is of vital importance to determine eventually the exact place of this factor in the total picture. In the meantime, when a case with the nervous type of involvement is considered from the standpoint of therapy, this factor must be given consideration when the therapy is outlined, regardless of whether it is a primary or a secondary development.

Klemperer,⁵ Puyuelo Salinas,⁶ Robinson⁴ and others have concluded that the toxic intermediate products resulting from the disturbed carbohydrate metabolism and disturbed liver function are largely responsible for the toxic type of disorders with the subsequent delirious symptoms found in cases of acute alcoholic psychoses (delirium tremens). In those cases the disturbances of metabolism are intense and are easily determined by a wide variety of laboratory tests.

Adlersberg and Porges³¹ and Sweeney³² have shown that increased carbohydrate in the diet raises and decreased carbohydrate lessens dextrose tolerance (i. e. ability to utilize dextrose). Himsworth³³ showed that in normal, healthy men the greater the carbohydrate content of the diet the greater the sensitivity of the organism to a measured dose of insulin, indicating that a high carbohydrate diet stimulates the secretion of body insulin and increases the efficiency of dextrose metabolism and utilization. The most important clinical lesson that can be learned from these tests is that glycosuria does not necessarily indicate diabetes mellitus (permanent hypo-insulinism), and that the so-called

diabetic type curve in the dextrose tolerance test is not positive evidence of diabetes; that is, that the "other causes" are of considerable clinical importance.

It is also of clinical importance that the kidney threshold for sugar is not fixed, either for the human body in general or for the individual from time to time. In a series of investigations on patients with diabetes, Sidoni³⁴ concludes:

No apparent quantitative correspondence existed between the blood sugar and the urine sugar in a large number of patients on protamine zinc insulin . . . as observed in our studies after regular prescribed meals. Probably renal functional disturbances which frequently escape detection by laboratory or physical means, brought about by the disturbed carbohydrate metabolism, were sufficient to interfere with the excretion of sugar in such a manner as to cause a partial loss and, at times, a marked loss of quantitative relationship between the urine and the blood sugar.

Our own records contain a number of cases that have been diagnosed diabetes in the past by other physicians. These patients either "spontaneously" recovered or, having been under treatment, usually self administered for many years, did not at the time of consultation with us show any evidence of a permanent hypo-insulinism, and therefore we did not consider that they had true diabetes mellitus. Exton³⁵ reported a series of 800 cases

TABLE 3.—Changes in Curves as the Result of Therapy

	Diabetic Type: Actual, Presumptive and Latent			
	Total	Corrected	Not Corrected	No Follow-Up
Exton and Rose (A, table 2)...	40	7	11	24
Gould et al. (B, table 2).....	25	8	5	12
Matthews et al. (C, table 2)...	38	11	7	20

in which a reducing substance appeared in the urine. He found that less than 2 per cent of these patients had true diabetes mellitus. The staff members of the George F. Baker Clinic³⁶ feel that glycosuria is presumptive evidence of diabetes mellitus, although 14 per cent of 14,000 patients who entered the clinic with a diagnosis of diabetes mellitus had nondiabetic mellituria or glycosuria due to pentose, levulose and lactose in the urine.

CONCLUSIONS

1. An abnormality of dextrose tolerance is a common finding in nervous and mental patients. This indicates that there is a disturbance in the utilization of carbohydrates and that the whole metabolic function is disturbed. It may be one of the etiologic factors in abnormal nervous and mental reactions.

2. Regardless of its place in the etiologic picture, the dextrose tolerance should be corrected as quickly as possible during the general therapeutic management of the case. Only after improvement of feeling tone and general metabolism can special measures, such as shock therapy and psychotherapy be readily effective.

3. The diagnosis of diabetes mellitus in patients with a history of nervous and nervous type conditions must be made with caution, for only after a long period of observation and treatment to correct malnutrition, metabolic disturbances resulting from improper habits.

27. Himwich, H. E., and Nahum, L. H.: Respiratory Quotient of Brain. *Am. J. Physiol.* 101: 446 (Aug.) 1932.

28. Himwich, H. E.; Bowman, K. M.; Wortis, Joseph, and Fazekas, J. F.: Brain Metabolism During Hypoglycemic Treatment of Schizophrenia. *Science* 56: 271 (Sept. 17) 1937.

29. Himwich, H. E.: Unpublished data.

30. Kerr, S. E., and Ghantus, Musa: Carbohydrate Metabolism of Brain: Effect of Varying Carbohydrate and Insulin Supply on Glycogen, Free Sugar and Lactic Acid in Mammalian Brain. *J. Biol. Chem.* 116: 9 (Nov.) 1936.

31. Adlersberg, D., and Porges, Otto: Zur Theorie und Praxis der kurativen Diabetesbehandlung. *Klin. Wchnschr.* 5: 1451 (Aug. 6); 5: 1508 (Aug. 13) 1926.

32. Sweeney, J. S.: Dietary Factors That Influence the Dextrose Tolerance Test: A Preliminary Study. *Arch. Int. Med.* 40: 818 (Dec.) 1927.

33. Himsworth, H. P.: Discussion of Physiological Factors Influencing the Action of Insulin. *Proc. Roy. Soc. Med.* 29: 658 (April) 1936; The Diabetic Factor Determining the Glucose Tolerance and Sensitivity to Insulin of Healthy Men. *Clin. Sc.* 2: 67 (Sept. 30) 1935.

34. Sidoni, Anthony, Jr.: Blood Sugar Versus Urine Sugar as Observed in Patients Treated with Protamine Zinc Insulin and with Ordinary Insulin. *J. A. M. A.* 112: 2503 (June 17), 2595 (June 24) 1939.

35. Exton, W. G.: Differential Diagnosis of Conditions Associated with Sugar Excretion. *New York State J. Med.* 30: 1545 (Oct. 15) 1936.

36. George F. Baker Clinic, Boston: Advances in the Treatment of Diabetes: Class II Exhibit A. M. A. annual session, 1938.

nervous tension states and other factors as yet undetermined can such a diagnosis be made.

4. The physician in general practice should keep this fact in mind when he is consulted by patients who present a symptom complex of "nervousness," fatigue and ready exhaustibility, vague somatic complaints and the picture that is usually diagnosed "psychoneurosis." If evidence of disturbed carbohydrate metabolism is found, a high carbohydrate diet with adequate insulin to insure combustion will be a valuable aid in the therapeutic program.

Neurological Hospital.

ADIPOSE TISSUE, A NEGLECTED SUBJECT

H. GIDEON WELLS, M.D.

CHICAGO

(Concluded from page 2183)

LIPOMAS

Lipomas are in a way analogous to steatopygous deposits except that they are not constant in their distribution. Although not racial they may at least be familial. Blaschko⁴³ has reported a family in which all the males of two generations exhibited multiple subcutaneous lipomas, the growths appearing first at puberty; none of the females of this family had lipomas. Unfortunately he gives no further details. Ewing quotes Murchison, who reported a family in which a father and three daughters exhibited multiple subcutaneous lipomas while nine sons were free of this condition. Other examples of familial lipomas have been reported by Meerbeck, Petre, Leven⁴⁴ and others.

Those who have been so fortunate as to secure specimens exhibiting early stages of lipoma formation (Borst, Bender) have found evidence that the lipoma arises like normal fatty tissue from a preadipose tissue derived from embryonic mesenchymal tissue. Even the so-called heteroplastic lipomas, arising in places where adipose tissue does not ordinarily exist (e. g. the meninges, kidney, periosteum), are believed by Chiari to arise from embryonic misplacement of true adipose tissue or preadipose tissue. Mallory⁴⁵ has described a subcutaneous lipoma with the cells exhibiting the moruloid structure of glandular adipose tissue occurring in an adult. This tumor resembled the glandular adipose tissue of emaciated infants in being reddish yellow and very vascular. Some early liposarcomas so closely resemble reticulo-endothelial tumors as to indicate the common origin of adipose and lymphatic tissues.

Lipomas exhibit a number of interesting features, often being something more than merely circumscribed overgrowths of adipose tissue. Because of the insulating quality of fat, the skin over a lipoma is distinctly cooler than in the corresponding area of the other side of the body, which is a point that may have some diagnostic value. They may appear as symmetrical growths and hence present a problem as to etiology. In some such cases a particularly close connection to nerves may be demonstrated (Chiari) and the tumors may be tender or painful,⁴⁶ but what the relation of the ner-

vous tissue to the etiology of the growths may be cannot now be stated. Such a condition recalls the "adiposis dolorosa" of Dereum. Cases have been described of multiple symmetrical lipomas appearing after a spinal injury which strongly support the idea that the nerves are in some way responsible, perhaps through trophic influence. They occur mostly after the age of 40 and most often in females (73 per cent of 134 patients in one series⁴⁷ were females). Adair, Pack and Farrior⁴⁸ say that when they are multiple lipomas are usually neurolipomas. They observed one instance in a 5 months infant, and Jacobi⁴⁹ said that in the literature he had found "less than thirty cases of congenital lipomas" up to 1884.

Even benign lipomas may contain immature cells, arousing suspicion of a beginning malignant growth, which is explained by the fact that mature fat cells seem to be unable to proliferate, and growth is accomplished by immature cells.⁴⁹ Occasionally lipomas do take on a malignant character, and then they demonstrate nicely the embryonic origin of fat in relation to the primitive myxomatous connective tissue of the early fetus, for such malignant growths are composed of a mixture of adipose and myxomatous tissue, descriptively called liposarcoma myxomatodes, or lipomyxosarcoma. Such tumors may reach great size, especially in the retroperitoneal region. I have observed one that weighed 69 pounds (31 Kg.)⁵⁰ Martin⁵¹ has reported a benign subcutaneous lipoma with teratomatous areas which in fifty-eight years grew to a weight of 59 pounds (27 Kg.).

Ewing⁵² recognizes two types of liposarcoma: (1) an adult fat cell type composed of granular cells resembling those found in chronic inflammation of fat tissue, which may be their starting point; (2) embryonal liposarcoma or lipomyxosarcoma, which exhibits a proliferation of minute vessels, the adventitial or endothelial cells of which, instead of producing fat, form chiefly mucus and occasionally embryonal fat tissue. "The cells, steatoblasts and lipoblasts, are derived from the adventitial layers of the blood vessels. They first appear as granular nucleated cells lying in the rich capillary network and producing a structure which resembles liver tissue." . . . Mucous tissue often appears in the fat anlage." An orange colored lipoma suggests origin from brown fat. Gricouroff⁵³ says that in the embryonic lipoma the myxomatous feature is provided by the stroma rather than the tumor cells, which accords with my own observations.

A particularly interesting feature of lipomas is their relation to the normal storehouses of fat, for there is a widespread belief that the fat in the lipomas is not available to the host as a source of nourishment. This is based on certain reputed instances in which the bearer of a lipoma is said to have become greatly emaciated from some intercurrent disease, notwithstanding which the lipoma either has remained its original size or has continued to grow. Despite the currency of this belief, it is difficult to find specific evidence as to its validity.

47. Adair, F. E.; Pack, G. T., and Farrior, I. H.: *Am. J. Cancer* 16: 1104 (Sept.) 1932.
48. Jacobi, A.: *Arch. Pediat.* 51: 78 (Feb.) 1934.
49. Jaffé, R. H.: *Recurrent Lipomatous Tumors of the Groin*, *Arch. Path.* 1: 381 (March) 1926.
50. Hirsch, E. F., and Wells, H. G.: *Am. J. M. Sc.* 150: 356 (March) 1920.
51. Martin, H. S.: *Massive Lipoma of the Subcutaneous Tissue of the Back*, *J. A. M. A.* 90: 2013 (June 23) 1928.
52. Ewing, James: *Fascial Sarcoma and Intermuscular Myxoliposarcoma*, *Arch. Surg.* 31: 507 (Oct.) 1935. Pack, G. T., and Anglem, T. J.: *J. Pediat.* 15: 372 (Sept.) 1939.
53. Gricouroff, Georges: *Bull. Assoc. franç. p. l'étude du cancer* 27: 251 (March) 1938.

43. Blaschko, H.: *Virchows Arch. f. path. Anat.* 124: 175, 1891.
44. Leven: *Dermat. Wchnschr.* 87: 1563 (Oct. 6) 1928.
45. Mallory, F. B.: *Pathological Histology*, 1929, p. 304.
46. Emil Ries (Am. J. Obst. & Gynec. 34: 490 [Sept.] 1937) has reported finding painful episacro-iliac lipomas as a common cause of backache, no less than 317 of 1,000 persons examined showing lipomas in this location.

According to Shattock, this belief depends largely on the teaching of Paget, based on a specimen in the museum of St. George's Hospital, with lipomas in the mesentery of a patient with phthisis from whom nearly all the natural fat had been removed; and on a case reported by Schuh of a man with masses of fat in the head, throat and chest, although the abdomen and legs were very thin. Shattock reexamined the St. George specimens, preserved since 1843, and found that some of the masses were lipomas but that some were caseous lymph nodes.

Many years ago (1912) I⁵⁴ investigated this question and found that, as far as the literature was concerned, the evidence was conflicting. Several general statements and but few specific case reports could be found. Of these, some agreed with Paget's idea, others described decrease in size of lipomas during emaciation. The possibility that lipomas might behave in either way is offered by analogy with other localized collections of adipose tissue. Thus, the fat of the camel's hump and of the steatopygous decorations of the Hottentot are drawn on for nourishment when needed, but the sucking pad of the infant's cheek usually retains its fat even in extreme emaciation. Malignant fatty tumors offer an undoubted case of accumulation of fat in spite of most severe depletion of fat from the normal fat depots, for nearly all the cases reported in the literature exhibited marked emaciation.⁵⁵

In my own case of liposarcoma referred to previously, which presented the largest solid tumor of which I can find certain record, the patient was emaciated to the maximum degree. Although there were several pounds of fat and protein in the tumor that might have been used for nourishment, it evidently was not available to the wasting organism, for not only was the subcutaneous fat lacking but even the more resistant perirenal adipose tissue had become almost completely depleted of its fat stores.

But in respect to benign lipomas the matter is not so clear, for well studied case reports of the influence of general nutrition on the weight and dimensions of these growths are lacking. The massive accumulations of fat sometimes seen in the neck and called "Madelung's neck," are said by Madelung⁵⁶ to remain unchanged during emaciation, but these are perhaps not true lipomas. I have recently seen a small (1.5 cm.) lipoma with fat-distended cells standing out in the extremely defatted omentum (fig. 5) of an old man dying of gastric cancer, his weight being but 90 pounds (41 Kg.). In progressive lipodystrophy it has been observed that a lipoma present in the subcutaneous tissues in the area that became depleted of fat remained distended with fat.⁵⁷

Why the wasting body cannot utilize these pathologic fatty masses is an unsolved problem. The few chemical studies of lipoma fat show no differences recognizable by present methods between the fat of lipomas and normal subcutaneous tissues. d'Argenio⁵⁸ says that lipomas contain myelin, which are absent in subcutaneous fat tissue. If so, this serves to rank lipomas with multilocular adipose tissue, which may explain its failure to resorb as readily as depot fat tissue.

It must be admitted not only that malignant tumor cells can build up their own cellular structure of proteins, which are inaccessible to the rest of the wasting body, but can also lay on and withhold fat, which seems in all respects to resemble the normal stored food needed by the emaciated patient. Since normal tissues do not ordinarily store fat for their own use but for the use of the entire organism, this holding of fat by tumor cells when the rest of the body needs it is entirely out of harmony with normal fat metabolism and challenges explanation. Certainly no anatomic peculiarity is known to explain the unavailability of lipomatous fat; there is plenty of blood supply to bring in the fat, so why cannot it be drawn out again? I have tried to see whether there is any difference between the enzymes of lipomas and normal adipose tissue,⁵⁴ but, as far as the



Fig. 5.—Lipoma of omentum (above) retaining its fat during extreme emaciation which has depleted the omental fat tissue (below). The man died of carcinoma of the stomach; he weighed 90 pounds (41 Kg.). Slightly reduced from a photomicrograph with a magnification of 145 diameters.

available means disclosed, lipoma tissue exhibits much the same lipase activity as adipose tissue, and lipoma fat was hydrolyzed by pancreatic juice as readily as fat from normal human adipose tissue.

The apparently anomalous behavior of fat deposits in lipomas suggests that the laying on and giving up of fat in adipose tissue does not depend on a simple reversible reaction, either chemical or physical. It would seem that these processes must be independent of each other and therefore each the result of a special activity of the fat cells. Perhaps in some tumors the cells differentiate only enough to accomplish the storage function, whereas in other tumors both functions are possible, and these lipomas are the ones that are seen to waste away during emaciation. Other tumors derived from the same cells may fail in large measure to acquire

54. Wells, H. G.: The Fat Metabolism of Lipomas, *Arch. Int. Med.* 10: 297 (Oct.) 1912.

55. Some patients with advanced cancer retain a high degree of adiposity. This paradox has been attributed in some cases to metastasis in the hypophysis, but this explanation does not generally hold, and Mathias (Verhandl. d. deutsch. path. Gesellsch. 26: 289, 1931) believes that anemia from hemorrhage or bone marrow metastases is responsible for adiposity in some cases.

56. Madelung, O. W.: *Arch. f. klin.-Chir.* 37: 106, 1888.

57. Christiansen, V.: *Rev. neurol.* 28: 1169 (Sept.) 1922.

58. d'Argenio: *Folia med.* 10: 809, 1924.

even the storage capacity and appear as the embryonal type of lipomas, which may resemble reticulum cell tumors.

DIFFUSE SYMMETRICAL LIPOMATOSIS

Besides the occurrence of well circumscribed lipomas in symmetrical locations, and with evident or apparent relation to nerve trunks, there is a group of most interesting conditions characterized by symmetrical excess of adipose tissue in diffuse form. This includes the "fat neck" of Madelung and many of the cases of "adiposis dolorosa" or Dercum's disease. Here too there is a relation to the nervous tissues as shown by the tenderness of the diffuse fat deposits, so that the relation to the circumscribed symmetrical lipomas is a close one. Indeed, within the diffuse fatty deposits of symmetrical adiposity there may also occur circumscribed areas resembling simple lipomas. These conditions have been well described and analyzed as understood in 1910 by Lyon.⁵⁹

Fat neck was described by Brodie in 1846, and many cases had been described in England and elsewhere when Madelung published his paper in 1888 in Germany. Therefore it is called Madelung's neck. The disease is characterized by symmetry, diffuseness and special localization of the fatty tumors, but the symmetrical tumors may not arise at the same time. Usually there are fatty deposits in other parts of the body besides the neck, which may appear later or earlier than the others. After removal the tumors do not recur, although new formations may occur about the periphery. It occurs chiefly in men, especially often in alcoholic addicts. Usually these subjects are in good health but occasionally they exhibit such constitutional symptoms as neuritis, arthritis or vasomotor disturbances. It is said that the fatty masses do not disappear spontaneously or vary with changes in the general state of nutrition. Lyon says that the constitutional symptoms of general adiposity, nodular lipomatosis and diffuse symmetrical lipomatosis are essentially the same. Frequently the types blend in such a manner that they cannot be distinguished from one another.

A relation to the ductless glands is shown by all these conditions; in some there is genital hypoplasia, in others changes in the thyroid or pituitary. Thyroid feeding is sometimes of benefit. The fatty tissue shows no characteristic histologic features and seems to be derived from ordinary adipose tissue and not from the special lobulated fat tissues.

Adiposis dolorosa was the appropriate name proposed by Dercum in 1892 for a group of these cases of generalized adiposity in which pain in the fat deposits is an outstanding feature. But, as already indicated, there is no sharp line between adiposis dolorosa and general obesity on the one hand and diffuse symmetrical lipomatosis on the other, for in both these conditions there is more or less tenderness, commonly manifested in the fatty deposits. In typical adiposis dolorosa, asthenia is usually present, often profound, and psychic abnormalities are often manifested. The chemical composition does not differ recognizably from that of normal adipose tissue.⁶⁰

There is nothing constant about the fat deposits, which may be diffuse, nodular or both, symmetrical or irregular, slight or very extensive. Usually the hands, feet and face escape. Likewise the degree and character

of the neuritic and psychic disturbances are extremely varied. Vasomotor instability, anhidrosis or hyperhidrosis testify to the sympathetic disturbances. Many trophic changes, including loss of hair, pigmentation and cutaneous ulcers, have been described.

Although a neuropathic family history is common, familial occurrence and hereditary influences are said not to be common, but Lyon believes that this is often overlooked. Reversing the relation in symmetrical lipomatosis of the neck, females greatly outnumber the males. Often it follows the climacteric. Although thyroid treatment sometimes improves the condition, it rarely if ever cures.

The fat deposits may contain separate embedded lipomas but in general exhibit no specific characters. An interstitial neuritis in the fat deposits is commonly described in the cases examined. Although the thyroid is seldom altogether normal, the changes described are so variable as to fail to establish a relation to the disease. Probably the thyroids of an equal number of persons of the same age dying from any chronic disease would show comparable conditions. The pituitary gland has shown more marked changes, sometimes neoplasia, suggesting a relation to hypophysial dystrophies. Up to the present time the etiology is entirely unknown, but the relation to hypophysial, thyroid and genital dystrophies seems to be indicated.

As Lyon says, it would be easy to collect cases ranging from normal through simple obesity to adiposis dolorosa. Many women who are not obese show tender baggy fat deposits on the arms and hips which differ chiefly in degree from diffuse symmetrical lipomatosis and adiposis dolorosa. Any one or more of the cardinal symptoms of the latter may be present in a given case of obesity, and even cases presenting all the symptoms (asthenia, tenderness, psychic symptoms) except obesity are seen. Anders⁶¹ described as "adiposis tuberosa simplex" cases of common obesity presenting tender fatty lumps in the adipose tissue. Furthermore, as mentioned before, cases of multiple nodular lipomas occur which exhibit tenderness without obesity and with or without other constitutional disturbances. Lyon finds that heredity plays a large role in these various forms of local adiposity and that different types may occur in relatives, indicating the lack of individuality of the types.

Frölich's syndrome is another illustration of an adiposity which in some cases verges on the adiposis dolorosa group and on the other side simulates the genital adiposities. I have seen a case that seemed clinically to be typical Frölich's syndrome which at autopsy showed congenital syphilis with severe arterial involvement and a structurally normal hypophysis. Also I have examined the body of a man with both testicles destroyed by syphilis who exhibited extreme obesity with a fat distribution recalling these syndromes. This corresponds with the observations of Tandler and Grosz⁶² on the similarity of the changes in hypophysial and testicular hypofunction. In castration obesity, as in simple constitutional obesity, the fat accumulation is said not to be entirely dependent on oversupply of fat, for these persons continue to gain weight on a restricted diet. Umber has described a case of obesity following oophorectomy in which the weight remained constant on a diet supposed to furnish only 900 calories a day. Such statements seem to suggest that the law of conservation of energy has been repealed.

59. Lyon, I. P.: Adiposis and Lipomatosis, Arch. Int. Med. 6: 29 (July) 1910.

60. Page, I. H.: Virchows Arch. f. path. Anat. 279: 262, 1930.

61. Anders, J. M.: Am. J. M. Sc. 135: 325, 1908.

62. Tandler, J., and Grosz, S.: Wien. klin. Wchnschr. 21: 277, 1909.

Lipodystrophia progressiva⁶³ is a remarkable and puzzling condition, characterized by loss of fat in the upper part of the body even to the degree of emaciation, while fat remains abundant and usually excessive below the waist line. The title "lipodystrophia cephalothoracica," proposed by Maranon and Alvarez Cascos,⁶⁴ gives a more accurate impression of the nature of the malady, for after a short period of progression the condition remains stationary. However, in a case reported by Bigler⁶⁵ the loss of fat was in the lower extremities, with persistence of the fat in the cephalothoracic region. Overfeeding causes fat to increase in the lower parts of the body but not in the emaciated parts. In one case a lipoma present in the upper part of the body persisted when the subcutaneous fat disappeared.

Like adiposis dolorosa, it occurs chiefly in females (about 2 to 1). In two cases reported with necropsies the fat in the body cavities was normal, as were the endocrine glands. The supposed relation to endocrine disturbances is supported by the fact that some patients with this dystrophy exhibit a redistribution of fat under thyroid feeding, the dimension of the hips decreasing while the axillary circumference increases (Beck); but others have not confirmed this. The general health is good, as are the sex functions. It is probable that minor degrees are common, and even frank cases are probably not so rare as the literature suggests, for Parmelee⁶⁶ was able to report six cases.

The hormone factor in these cases is, however, hard to reconcile with the topographic limitation, as it is in cases in which the adiposity is unilateral, but it must be recalled that unilateral acromegaly has been described. Trophic nerve changes are often present, which serves to relate this condition with adiposis dolorosa and the rest of the lipodystrophies. Microscopic study shows merely a loss of fat tissue from the subcutaneous tissue of the dystrophic part of the body without persistence of the embryonal type of defatted adipose tissue cells as occurs in ordinary emaciation, at least in the case (Bigler's) I have examined. This disappearance of fat cells explains the inability of the affected subcutaneous tissues to store fat, no matter how much is assimilated.

Maranon and Alvarez Cascos, who say that this condition is especially common in Spanish women, suggest that it is merely an individual exaggeration of a tendency for an irregular distribution of subcutaneous fat often seen in less degree in women, dependent on chromosomal constitution and perhaps augmented by endocrine abnormalities, especially hypothyroidism, which is present in 20 per cent of the cases. As pointed out by Lauter and Terhedebrügge,⁶⁷ in thyroidogenous emaciation the buttocks retain relatively more fat while the thorax loses relatively more. No consistent changes have been found in the endocrine organs.

GENERAL OBESITY

The topic general obesity covers so much ground that it is not feasible to discuss it within the space of this paper, nor is it really a disease of fat tissue but of general metabolism, so I shall refer to only one phase of its experimental study, which, having been presented outside the medical literature, has been overlooked in

most discussions of obesity. This is the experimental demonstration of the significance of heredity for the occurrence of adiposity, and important possibilities opened for future studies on obesity, by the observations of Danforth⁶⁸ of Stanford University on hereditary obesity in mice. In a strain of yellow mice there occurs a pronounced form of adiposity, more marked in females, which is associated in cross breeding experiments with the yellow color. These animals lay on much more fat than control mice on the same diet, and this fat can be utilized when required by fasting. That human obesity is in large measure determined by heredity has been shown by numerous clinical studies, among the more recent of which may be mentioned the report of Gurney.⁶⁹

PATHOLOGY OF ADIPOSE TISSUE

Beyond the various types of overgrowth previously discussed, little has ever been said or written about diseases of this widespread and quantitatively important tissue. That it may play any part in systemic disease seems never to be considered. But when one observes the character of the fat cells when they are free from fat and notes their abundant cytoplasm and the gland-like vascularization of adipose tissue, the possibility presents itself strongly that such a tissue may play a part in general metabolism which has been overlooked, until recent studies, cited previously, have shown its function of converting carbohydrate into fat. The presence of great deposits of fat in the cells need not prevent their exhibiting active metabolism, since the cytoplasm is outside the fat and in close relation to the blood supply. As stated previously, I have found that the production of maximum degrees of fatty deposition in liver cells does not appreciably decrease their capacity to oxidize uric acid. The work of Wassermann, indicating that adipose tissue is part of the reticulo-endothelial system, suggests that it may play a part in immunity. The demonstrated role in fat formation indicates functional activity not formerly suspected and supports the suspicion that other unrevealed activities may also be going on in this neglected tissue.

When extensive fatty changes are produced in the liver and other parenchymatous organs by phosphorus, arsenic and other steatogenic poisons, the fat, at least in part, comes from the adipose tissue depots, for extreme emaciation may interfere with the production of this fatty metamorphosis.⁷⁰ Balan⁷¹ says that in phosphorus poisoning the adipose tissue fat becomes so altered that it stains with Nile blue, indicating a change in the state of the stored fat, presumably related to its transportation.

NECROSIS OF ADIPOSE TISSUE

Only a few disease processes have been recognized as affecting adipose tissue itself. Perhaps most discussed is the focal necrosis of the fat tissue that occurs when adipose tissue comes in contact with pancreatic juice. Here the cleavage of the fat by the lipase is followed by soap formation, giving rise to the characteristic circumscribed opaque white areas in the adipose tissue. By using lipase from vegetable sources and artificial lipases, as well as pancreatic enzymes, Neal and Ellis⁷² have shown that lipase rather than trypsin

63. Watson, W. N. B., and Ritchie, W. T.: *Quart. J. Med.* 18: 224 (Jan.) 1924 (review of early literature).

64. Maranon, G., and Alvarez Cascos, J.: *Endokrinologie* 6: 87 (Feb.) 1930.

65. Bigler, J. A.: *Loss of Subcutaneous Fat of the Lower Extremities (Lipodystrophy)*, *J. A. M. A.* 112: 627 (Feb. 18) 1939.

66. Parmelee, A. H.: *Lipodystrophy*, *J. A. M. A.* 95: 548 (Feb. 13) 1932.

67. Lauter, S., and Terhedebrügge, A.: *Deutsches Arch. f. klin. Med.* 181: 193, 1937.

68. Danforth, C. H.: *J. Hered.* 18: 153 (April) 1927.

69. Gurney, Ramsdell: *The Hereditary Factor in Obesity*, *Arch. Int. Med.* 57: 557 (March) 1936.

70. Wells, H. G.: *Chemical Pathology*, ed. 5, Philadelphia, W. B. Saunders Company, 1925, p. 447.

71. Balan, N. P.: *Beitr. path. Anat. u. z. allg. Path.* 76: 198 (Dec. 30) 1926.

72. Neal, M. P., and Ellis, M. M.: *Tr. Chicago Path. Soc.* 13: 218 (June 1) 1930; *J. Missouri M. A.* 32: 37 (Feb.) 1935.

is responsible for pancreatic fat necrosis. Pure pancreatic juice will not produce fat necrosis unless activated by intestinal juice,⁷³ and presumably by tissue kinases. Rewbridge⁷⁴ has shown that bile in the peritoneal cavity may produce fat necrosis, apparently through affecting tissue permeability so that the enzymes escape from the pancreas. The products of the fat cleavage seem to have no part in the toxic state that results from the acute pancreatitis or peritonitis which often accompany peritoneal fat necrosis.

A similar condition, at least morphologically, is sometimes seen where fat tissue has been traumatized, even without the possibility of contact with *pancreatic juice*. It has been described chiefly in the subcutaneous fat tissue of the abdominal wall and the female breasts.⁷⁵ As many of the cases occurring in the female breast present no history of trauma, it is possible that it may sometimes result from escape of duct contents into the adipose tissue,⁷⁶ and in some cases it may be part of a generalized disease of adipose tissue, nonsuppurative panniculitis. It is not infrequently seen in fat cattle killed in the Chicago stock yards and presumably is the result of the traumatism that occur during transportation. Also it may result in infants from birth trauma.⁷⁷

SCLEREMA NEONATORUM

A remarkable pathologic condition of adipose tissue is seen in the condition known as "sclerema neonatorum,"⁷⁸ in which the subcutaneous adipose tissue becomes hard and rigid, like chilled fat. In those cases in which the process is diffuse, the affected infant may feel like the body of a fat sucking pig brought out of the refrigerator. Sometimes the process is localized, and the affected areas may undergo necrosis, even with subsequent calcification, constituting "adiponecrosis subcutanea neonatorum." This condition seems to depend on a deficiency in olein in the subcutaneous tissues, which causes the adipose tissue to have an abnormally high melting point.⁷⁹ The resulting mixture of stearin and palmitin crystallizes at body temperature and the crystals may incite an inflammatory foreign body reaction.⁸⁰ According to Harrison,⁸¹ these crystals have a melting point of from 40 to 50 C., whereas crystals from the fat of normal infants melt at 30 C. Whether the deficiency in triolein responsible for the raised melting point is a developmental defect or a postnatal abnormal utilization of the olein is not known. In infants with such abnormal fat, obstetric trauma is usually the cause of the local necrosis, ordinarily noted only in the subcutaneous tissues, but occasionally in the perirenal fat.⁸² Siwe⁸³ says that when adults exhibit adiponecrosis their fat is found to exhibit the same excessive proportion of palmitin as is seen in affected children and that similar changes may be obtained in animals injected with palmitin and palmitic acid.

73. Kestner, O.: *Virchows Arch. f. path. Anat.* 246: 305, 1923.

74. Rewbridge, A. G.: *Fat Necrosis in Bile Peritonitis*, *Arch. Path.* 12: 70 (July) 1931.

75. Lee, B. J., and Adair, F. E.: *Surg., Gynec. & Obst.* 34: 521 (April) 1922.

76. Gottesman, J., and Zemansky, A. P., Jr.: *Ann. Surg.* 85: 438 (March) 1927.

77. de Bruin, M.: *Nederl. tijdschr. v. geneesk.* 1: 1221 (March 9) 1929.

78. Bernheim-Karrer, J.: *Sclerema Neonatorum* (Subcutaneous Fat Necrosis), *Am. J. Dis. Child.* 55: 112 (Jan.) 1938 (review).

79. Channon, H. J., and Harrison, G. A.: *Biochem. J.* 20: 84, 1926.

80. Gray, A. M.: *Sclerema Neonatorum*, *Arch. Dermat. & Syph.* 14: 635 (Dec.) 1926.

81. Harrison, G. A.: *Arch. Dis. Childhood* 1: 123 (June) 1926.

82. Bernheim-Karrer, J.: *Ztschr. f. Kinderh.* 55: 695, 1933.

83. Siwe, S. A.: *Jahrb. f. Kinderh.* 141: 1, 1933; *Acta path. et microbiol. Scandinav.*, suppl. 16: 438, 1933.

LIPOGRANULOMATOSIS

Local necrosis of adipose tissue from whatever cause may stimulate proliferative reactions leading to the formation of what are essentially foreign body tubercles but with special characteristics because of the abundant lipophage cells and often multinucleated foreign body giant cells. At times the fat is set free to form small oil cysts surrounded by a zone of macrophages and giant cells.⁸⁴ In other cases the abundance of proliferating cells has suggested the presence of a neoplasm, and it is probable that dermatologists have looked on these "lipophage granulomas" as tuberculids (e.g. *Darier sarcoid* or *erythema induratum Bazin*) according to Abrikossoff.⁸⁵ They may become calcified, but this seems to be unusual. Harbitz⁸⁶ and others report cases in which these "lipogranulomas" were mistaken for malignant tumors and led to excessive operative procedures, especially when they have appeared at the site of the trauma of a previous operation for removal of a tumor. It is not sufficiently appreciated that when fat tissue is injured the liberated fat may act as a foreign body, especially if crystals of fatty acids or soaps are formed, and then the picture of lipogranulomatosis appears with its proliferation of fibroblasts and foreign body giant cells. The histologic changes of sclerema neonatorum are of this character. The fundamental principles of the reaction of tissues to mixtures of human fat, soaps and cholesterol have been studied by Hirsch.⁸⁷

ATROPHY AND HYPERTROPHY

In those parts of the body where adipose tissue has the function of filling in spaces, a condition known as "serous atrophy of fat" is seen when there has been marked emaciation. This is nothing else than a form of "edema ex vacuo." The fat having been absorbed, the space it formerly occupied is filled with serous fluid, mostly as an interstitial edema, although the cytoplasm of the depleted fat cells apparently also participates in the water storage (fig. 3).

The reverse process often occurs when a solid tissue decreases in size and the place it formerly occupied becomes filled with adipose tissue, constituting essentially a compensatory hypertrophy of fat. The bone marrow is probably the tissue exhibiting this change most frequently, since the marrow of the long bones is seen to fluctuate with every large variation in the demand for blood cells, from yellow fatty marrow composed almost solely of adipose tissue to cellular red marrow, and back again to adipose tissue. Likewise, when bone is absorbed its place is often filled by fatty marrow. In adiposity the excessive fat tissue may crowd out the muscle fibers in the heart wall, especially near the apex. Sometimes the process is so extensive that the fat may extend through to the endocardium. In such cases a weakened heart wall may rupture through the fatty portion, and the fat infiltration may be responsible for slow or sudden cardiac failure, even without rupture.⁸⁸ Also the pancreas may have its glandular tissue crowded out by fat tissue, so that little remains but the islets, which seem to be completely spared. Apparently the factor of safety in the pancreas is large, for assimilation of food seems to continue to be excessive in such adipose subjects. When pancreatic

84. Lang, F. J.: *Arch. f. klin. Chir.* 165: 450, 1930.

85. Abrikossoff, A.: *Verhandl. d. deutsch. path. Gesellsch.* 24: 57, 1923.

86. Harbitz, H. F.: *Acta chir. scandinav.* 76: 401, 1935.

87. Hirsch, E. F.: *Experimental Tissue Lesions with Mixtures of Human Fat, Soaps and Cholesterol*, *Arch. Path.* 25: 35 (Jan.) 1933.

88. Saphir, Otto, and Corrigan, M. C.: *Fatty Infiltration of the Myocardium*, *Arch. Int. Med.* 52: 410 (Sept.) 1923.

Smith, H. L.: *Willius, F. A.: Adiposity of the Heart*, *ibid.* 52: 911 (Dec.) 1933.

atrophy follows duct obstruction, marked replacement with adipose tissue occurs whether the patient is obese or not.

Replacement adiposity is often seen in those forms of chronic nephritis in which the size of the kidney is reduced, the adipose tissue at the hilus increasing *pari passu*, so that the kidney may appear externally to be of about normal size, despite loss of half or more of its secretory tissue. In pseudohypertrophic muscular atrophy a similar compensatory hypertrophy occurs, the muscles appearing as large as or even larger than normal through replacement of the lost muscle fibers by adipose tissue. Where the adipose tissue comes from in these conditions has not been determined—whether it is new formation from undifferentiated cells, acquisition by fibroblasts of the power to lay on fat or merely an increase in the fat content of the existing local adipose tissues. It is suggested by Wassermann that in the fatty replacement of atrophic muscles, the remaining capillary bed transforms itself with the intramuscular connective tissue into a new adipose tissue.

INSULIN LIPODYSTROPHY

The common use of insulin has produced a pathologic state in adipose tissue which may occur under other conditions but which has hitherto been unrecognized. This is a localized melting away of the fat in the vicinity of the sites of injection, sometimes in areas as large as the palm of the hand, where the panniculus adiposus is entirely absent and the thinned, fatless cutis lies directly on the underlying muscular and fascial structures. The process develops without evidence of inflammation, and as yet no satisfactory explanation has been advanced. Insulin preparations do not contain lipase that might hydrolyze the fat. Nichols⁸⁹ suggests that the concentration of insulin causes an active local combustion of carbohydrate, which in turn causes active combustion of the fat. Sometimes areas of hyperplasia of adipose tissue may appear side by side with the atrophic areas;⁹⁰ in fact, Priesel and Frey⁹¹ state that local adipose hypertrophy occurs more often than local atrophy.

PANNICULITIS

Under the title "Relapsing Febrile Nodular Nonsuppurative Panniculitis," Christian⁹² has described a disease of unknown etiology characterized by recurring attacks of fever, associated with a peculiar generalized nodular inflammation of the subcutaneous tissue, leading in time to areas of atrophy. This condition had been previously described by several others under various titles. Binkley⁹³ says that of thirteen cases reported in the literature eleven were in females and two in males. The process histologically resembles that seen in various forms of necrosis of fat tissue with inflammatory reaction, such as is seen in traumatic fat necrosis of the breast. Occasionally liquefaction of the fat takes place as in the case reported by Shaffer,⁹⁴ the resulting oil discharging externally from the lesions.

SUMMARY

There is now conclusive evidence that adipose tissue is not merely a connective tissue which stores fat but

a special organ which has other functions. Therefore it may play a part in disease processes not yet recognized.

Until more is known about the extent and variety of these functions it cannot be known just how much adipose tissue modifies or is modified by various disease processes. But since many of the physiologic functions of tissues have been revealed by their pathologic deviations, the pathologists as well as the physiologists should give more consideration to the possibility of there being hitherto unappreciated activities and maladies of the adipose tissues, which are to be considered as constituting, like the widely distributed bone marrow, one of the largest of the organs of the body. Adipose tissue is not merely a storehouse; it is also a manufacturing plant in active operation, not only producing some or all of its own stored materials but probably conducting other processes not yet revealed to the incurious passers by.

ACUTE INVERSION OF THE PUERPERAL UTERUS

A RECORD OF TWENTY-ONE CASES

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Acute inversion of the puerperal uterus, the turning inside out of the uterus, is one of the rarest of obstetric complications. When only a portion of the fundus uteri is inverted, one speaks of the condition as a partial inversion. When the entire organ is inverted, it is called a complete inversion. In the strict sense of the word the latter condition is rare, because there is usually a rim of cervix which does not turn inside out and hence most cases should be classed as partial inversions. From the practical standpoint, however, when the fundus uteri protrudes completely through the cervix the condition is called a complete inversion of the uterus. Such an organ may be lying entirely within the vagina or the inversion may be accompanied by prolapse, in which event the inverted uterus protrudes from the vulvar orifice as a large, soft, bleeding mass of tissue closely resembling a large pedunculated fibromyoma.

Statistics vary widely as to the incidence of this condition. Beckmann¹ states that acute inversion of the puerperal uterus was not encountered in more than 250,000 deliveries at the St. Petersburg Lying-in Hospital. Irving reports an incidence of inversion of the uterus of one in 7,837 cases at the Boston Lying-in Hospital. The cases included in this report consist of fifteen cases of acute inversion of the puerperal uterus occurring in Philadelphia during the years 1931-1938 inclusive, five cases occurring in one hospital outside of Philadelphia during the years 1933-1938 inclusive and one case occurring in Philadelphia prior to 1931. If one considers the frequency of this condition from the standpoint of the five cases occurring in one hospital outside of Philadelphia in a total of 3,700 deliveries, this would give an incidence of one inversion in 740 deliveries. Obviously this is much greater than the incidence of inversion generally encountered throughout the world and is an indication of the fallacy of statistics based on the experience of a single hospital

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1. Beckmann, Wilhelm: Zur Aetiologie der Inversio Uteri postpartum. Ztschr. f. Geburtsh. u. Gynäk. 31: 371, 1895.

89. Nichols, J. B.: Am. J. M. Sc. 150: 90 (July) 1930.

90. Dinkler, Georg: München. med. Wchnschr. 83: 312 (Feb. 21) 1936.

91. Priesel and Frey: Arch. f. Kinderh., supp. 15, 1938.

92. Christian, H. A.: Relapsing Febrile Nodular Nonsuppurative Panniculitis. Arch. Int. Med. 42: 338 (Sept.) 1928.

93. Binkley, J. S.: Relapsing Febrile Nodular Nonsuppurative Panniculitis, J. A. M. A. 113: 113 (July 8) 1939.

94. Shaffer, Bertram: Liquefying Nodular Panniculitis. Arch. Dermat. & Syph. 38: 535 (Oct.) 1938.

or a small group of physicians. During the eight year period 1931-1938 inclusive there were 243,602 deliveries reported to the registrar of vital statistics in Philadelphia. A brief questionnaire concerning inversion of the uterus was sent to every institution in Philadelphia in which any obstetric patients were treated during this period. We are glad to be able to report that every institution so approached replied to us and we were given free access to the records of all cases of acute inversion of the uterus. Because of the serious nature of this obstetric complication we believe that we may safely assume that all patients with inversion of the uterus occurring in delivery in the home would eventually be sent to a hospital. We therefore believe that we have studied all cases of inversion of the uterus occurring in Philadelphia, a city of more than 2,000,000 people, and in the practices of more than 3,000 physicians during a period of eight years. Fifteen cases in all were so collected. This gives an incidence of one case of acute inversion of the puerperal uterus in 16,240 deliveries. Of our total of twenty-one cases, fourteen occurred in primiparas and seven in multiparas.

Inversion of the uterus may occur spontaneously but is usually due to improper conduct of the third stage of

"dimple" which predisposes to inversion of the uterus. In other cases there appears to be some abnormality in the innervation of the uterus which results in abnormal contraction of the uterine muscle fibers and the production of "inert" areas or areas of softening in the uterine wall. A personal case of one of us (W. B. H.) in 1936 illustrated this strikingly:

Mrs. C. K., a primipara aged 29, went into labor spontaneously at term. There was marked inertia uteri and it was noticed that the entire left half of the uterus remained soft and flabby during the labor pains. Finally, after thirty hours of such labor without much progress, cesarean section was performed. The uterus was grossly normal, but following the extraction of the fetus only the right half of the uterus contracted and retracted, the left half remaining large and exceedingly flabby. This produced a marked asymmetry of the uterus and actually brought about a dimpling of the fundus exactly like a partial inversion of the uterus. To overcome this obvious tendency to inversion and as a prophylaxis against postpartum hemorrhage, the interior of the uterus was packed with gauze before closure of the uterine incision.

As pointed out by Watson,² the law of reciprocal innervation of organs controlled by a sphincter muscle applies to the uterus. In such an organ the innervation is such that there is contraction of the longitudinal muscle fibers and simultaneous relaxation of the circular (sphincter) fibers to bring about emptying of the organ; in the case of the uterus such action, when excessive, may readily produce a spontaneous inversion.

All these causes of inversion of the uterus are illustrated in our twenty-one cases, as shown in table 1. It is readily apparent from this table that sixteen, or 76 per cent, of these twenty-one cases were due to errors in technic and were therefore theoretically avoidable.

The time of occurrence of the inversion with respect to the third stage of labor is of considerable interest and is shown in table 2. In one case the inversion recurred three hours after the manual replacement of the first inversion.

Table 2 shows that 57 per cent of the cases in this series occurred before the placenta was separated from the uterine wall. In an additional 28.5 per cent inversion followed immediately on the expulsion of the placenta and was caused by efforts on the part of the attending physician to express the placenta. Only three cases (14 per cent) occurred one half hour or more after the delivery of the placenta. All three were cases of spontaneous inversion.

The prognosis in acute inversion of the uterus is very bad. Cooke states that there is a mortality of about 40 per cent. In our series of cases there were nine deaths and twelve recoveries, a mortality rate of 43 per cent.

The important signs and symptoms of acute inversion of the puerperal uterus are hemorrhage, shock and the absence of the rounded uterine fundus on abdominal palpation. The hemorrhage may be only moderate in amount but is usually quite profuse, the patient rapidly becoming exsanguinated. When the placenta remains attached to the inverted uterus the amount of bleeding is usually moderate. When the placenta has been detached from the uterine wall either before or after the inversion occurs there is interference with the normal retraction of the uterus and so failure of constriction of the vascular sinuses in the placental area, with consequent serious hemorrhage. In our series hemorrhage was very profuse in twelve, moderately

TABLE 1.—Causes of Inversion

	Patients	Per Cent
1. Avoidable.....	16	76
A. Suprafundal pressure.....	9	
B. Manual removal.....	5	
C. Traction on cord.....	2	
2. Unavoidable.....	5	24
A. Spontaneous.....	4	
B. Short cord.....	1	

labor. The most frequent cause of inversion of the uterus is suprafundal pressure applied to a relaxed uterus in an effort to expel the placenta. Traction on the umbilical cord before complete separation of the placenta and with the uterus relaxed is also a frequent cause of inversion. Attempts at manual removal of an adherent placenta may bring about an inversion of the uterus in either of two ways: First, the placenta may not be completely detached before the hand is withdrawn from the uterus and the traction on the adherent placenta may initiate the inversion, or, second, the hand and forearm may create a piston-like suction which inverts the uterus. A short umbilical cord or one relatively shortened by being looped about the fetal body may cause traction on the attached placenta and so produce inversion of the uterus immediately following the birth of the child. Various explanations for the spontaneous occurrence of inversion of the uterus have been advanced. Increased intra-abdominal pressure brought about by coughing, sneezing, vomiting or attempts to sit up may produce inversion of the uterus. The theory has been advanced that there is an abnormal distribution of the muscle fibers of the fundal portion of the uterus with a preponderance of circular fibers over the longitudinal ones in some of these cases. It is stated that in those cases in which the placenta is attached to the fundus uteri there is a thinning of this portion of the wall of the uterus and a softening due to the increased vascularity which results in imperfect contraction of the muscle fibers and the production of a

2. Watson, B. P.: Personal communication to the authors.

severe in six and only slight in three cases. Shock is almost invariably present in inversion of the uterus and, even when the hemorrhage is very profuse, is out of all proportion to the amount of blood lost. No other obstetric condition is accompanied by such acute and profound shock. The skin becomes cold and clammy; the pulse becomes extremely rapid and so weak as to be imperceptible at the wrist. Within a few minutes after an acute inversion of the uterus a previously normal woman is in an extremely precarious condition. In this group of cases the pulse rate averaged 160 per minute and serious shock was present in twenty cases. One showed no evidence of shock—a most unusual condition in inversion of the uterus.

The differential diagnosis of acute inversion of the uterus is not difficult. Most commonly it is mistaken for a pedunculated submucous fibroid, as was the situation in two of the cases in this series. The absence of the firm rounded mass of the uterus above the symphysis pubis and the presence of hemorrhage and shock should immediately suggest the possibility of an acute inversion of the uterus and the institution of the proper treatment for this condition.

Since more than 75 per cent of all cases of inversion of the uterus are preventable, prophylactic treatment of this condition is of prime importance. The preventive treatment of this rare but serious complication of pregnancy must be started in our medical schools. Medical students must be more adequately instructed in the physiology of the third stage of labor, particularly with respect to the mechanism of the separation and expulsion of the placenta. They must be impressed with the importance of waiting until the placenta has separated before efforts are made to expel it and must be made to understand the danger attendant on pulling on the umbilical cord or on attempting the Credé method of expressing the placenta in the absence of spontaneous, firm uterine contraction. When these fundamentals of obstetric practice become deeply instilled in all physicians and there is consequent improvement in the conduct of the third stage of labor, then indeed will acute inversion of the puerperal uterus become a rare condition.

Such training will require time and is a project for the future. In the meantime one is occasionally faced with the necessity of promptly and properly handling this condition. When, as in the experience of one of us (W. B. H.), this complication occurs in each of two successive deliveries or when, as in the experience of the other of us (J. A. S.), one is called in consultation on five such cases in a relatively short time, this condition assumes colossal proportions and becomes a never to be forgotten catastrophe, and the matter of proper treatment becomes of paramount importance.

At the present time there is considerable divergence of opinion as to the proper treatment of acute inversion of the uterus; Williams,³ Beck,⁴ Titus⁵ and Cooke⁶ advise immediate replacement of the inverted uterus. Zangemeister⁷ reported a 23 per cent mortality in this condition when operation was undertaken in the pres-

ence of shock and no mortality when operation was deferred until after reaction had taken place. De Lee⁸ originally advocated immediate replacement only to control severe hemorrhage, but in an editorial comment in the Year Book of Obstetrics and Gynecology for 1938 he modified his stand and now advises immediate replacement when it can be readily accomplished. Irving and Kellogg⁹ are very emphatic in their belief in deferring replacement of the inverted uterus until after recovery from the shock.

Such divergence of opinions can be explained only on the basis of the personal experiences of these men and the particular type of case that they encountered. Even after many years of active service covering thousands of obstetric cases one sees only few cases of inversion of the uterus. The late Prof. B. C. Hirst saw only eight such cases. We have each had personal experience with five cases of inversion of the uterus, a total of ten different cases, and therefore feel entitled to express our own opinions as to treatment.

We believe that the inverted uterus should be replaced immediately by gentle taxis when the patient is seen shortly after the inversion has occurred. Active anti-shock treatment should at the same time be started by an assistant and continued until the patient has reacted

TABLE 2.—Time of Occurrence of Inversion

	Patients	
	Number	Per Cent
1. Before placenta detached.....	12	57
2. After placenta expelled.....	9	43
A. Immediately.....	6	
B. One-half hour later.....	2	
C. One hour later.....	1	

well. In our cases we have accomplished replacement without much difficulty and, we believe, without adding appreciably to the shock already present. If there is a tendency toward constriction of the cervix, this may be overcome and the replacement of the uterus facilitated by the intramuscular injection of from 0.5 to 1 cc. of solution of epinephrine hydrochloride (1:1,000) as advocated by Urner.¹⁰ In our cases and in those of this series so treated by other physicians the results of immediate manual replacement of the uterus have been very satisfactory. In all these cases improvement was noted immediately after the uterus was replaced. In a total of thirteen cases of immediate replacement of the inverted uterus there were eleven recoveries and two deaths. One death occurred in a case in which inversion complicated eclampsia. The other death occurred as a result of recurrence of the inversion three hours after its first replacement. In this case the attending physician did not arrive at the hospital until more than an hour after the recurrence of the inversion and it was then found to be impossible to replace the uterus.

Under modern conditions of hospital obstetrics practically all patients are surgically prepared and anesthetized at the time of actual delivery. Since most cases of inversion of the uterus occur during or immediately

3. Williams, J. W.: *Obstetrics*, New York, D. Appleton-Century Company, Inc., 1926, p. 946.

4. Beck, A. C.: *Obstetrical Practice*, Baltimore, Williams & Wilkins Company, 1935, p. 573.

5. Titus, Paul: *The Management of Obstetric Difficulties*, St. Louis, C. V. Mosby Company, 1937, p. 499.

6. Cooke, W. R.: *Obstetrics and Gynecology*, edited by A. H. Curtis, Philadelphia, W. B. Saunders Company 2: 142, 1933.

7. Zangemeister, W.: *Ueber puerperale Uterus-Inversion*, Deutsche med. Wchnschr. 39: 729, 1913.

8. De Lee, J. B.: *Principles and Practice of Obstetrics*, Philadelphia, W. B. Saunders Company, 1925, p. 803.

9. Huntington, J. L.; Irving, F. C., and Kellogg, F. S.: *Abdominal Reposition in Acute Inversion of the Puerperal Uterus*, Am. J. Obst. & Gynec. 15: 34 (Jan.) 1928.

10. Urner, J. A.: *The Use of Adrenalin in the Treatment of Acute Inversion of the Puerperal Uterus*, Am. J. Obst. & Gynec. 25: 131 (Jan.) 1933.

after the third stage of labor, these patients are under perfect conditions for the immediate replacement of the uterus. Many will not even require additional anesthesia. A change of gloves is probably all that is needed on the part of the attending physician. The inverted uterus is usually quite soft and relaxed at this time, so that replacement can be effected easily and quickly. The whole procedure can be accomplished before serious shock develops or much blood is lost. It must be emphasized that replacement must be effected immediately to insure good results.

If the attending physician is not competent to replace an inverted uterus and a consultant must be called, considerable time may elapse before his arrival. In such cases he is likely to find the patient in profound shock and greatly exsanguinated. On examination of such a patient the cervix is found to be so constricted as to make replacement of the uterus extremely difficult or impossible. Obviously such a patient is an extremely

tion or by the better known Spinelli¹² modification. In this operation the constricting ring of cervix is incised in the midline anteriorly. The uterus is reinverted and the uterine incision then repaired as in an anterior vaginal hysterotomy. Huntington advocates the abdominal approach for reinversion of the uterus. In his method the abdomen is opened by a midline incision below the umbilicus. The uterus is then replaced by grasping the invaginated portion with strong vulsellum forceps on opposite sides of the rim and pulling it up in a hand over hand fashion. After complete replacement of the uterus it is packed vaginally.

Two of these patients were treated by operative means. In one case a laparotomy under ethylene anesthesia was done five hours after inversion and the uterus replaced by the method of Huntington. The patient died two hours later. In the other case the condition was diagnosed as a pedunculated fibroid and a laparotomy was done for hysterectomy. When the peritoneal cavity was opened it was found that the uterus, which had actually been inverted, had been replaced in the process of packing the vagina prior to operation. Hysterectomy was done and on examination of the excised uterus no fibroid was found. This patient recovered.

The effect of inversion of the uterus on subsequent pregnancy and labor is interesting. Not many such cases have been reported. In several such cases, as for example the one reported by Fox,¹³ the uterus inverted again at the time of a subsequent delivery. In other cases subsequent delivery has been uneventful. Cesarean section is indicated in subsequent pregnancies in those cases in which inversion was treated by a surgical procedure such as Küstner's, Spinelli's or Haultain's operation. One of the patients in this series has been delivered recently without any abnormality.

CONCLUSIONS

Seventy-six per cent of the cases in this series were due to errors in technic and therefore were theoretically avoidable.

Immediate manual replacement of the inverted uterus together with active anti-shock treatment gave the best results. Intermediate and delayed manual replacement and surgical replacement results in a high mortality.

1600 Walnut Street.

12. Spinelli, P. G.: Della inversione uterina, Riv. di ginec. contemp., Napoli 1: 1, 1897.
13. Fox, P. C.: Acute Inversion of Puerperal Uterus in Two Successive Pregnancies, Am. J. Obst. & Gynec. 30: 295 (Aug.) 1935.

The Span of Life Has Not Been Lengthened.—In the common way of thinking longevity really means living past 80 years, and great human longevity means being a nonagenarian or centenarian. Progress in medicine and improvement in the public health have done little or nothing about enabling the individual to achieve such a goal, as the cold statistical facts about the order of human dying make abundantly clear. The span of human life has not been lengthened, and there is no present prospect that it soon will be. The average duration of life is all that has been altered, and that has been accomplished chiefly by giving more babies a fairer start in life's journey than they use to have. Because more of them get by the early and very difficult hurdles, absolutely more of them survive at later ages. But the terms of the bet that any individual man aged 70 today can safely lay that he will be alive at 90 appear to be not quite as good as they were fifty years ago.—Pearl, Raymond: The Search for Longevity, in Landmarks of Medicine, New York, D. Appleton-Century Company, 1939.

TABLE 3.—Treatment and Results

Replacement	Number	Recovered	Died	Interval Between Replacement and Death
1. Manual.....	18	11	7	
A. Immediate....	13	11	2	2 hrs., 7½ hrs.
B. Intermediate	3	0	3	¾ hr., 1½ hrs., 1½ hrs.
C. Delayed.....	1 (11 hrs.)	0	1	0 hrs.
D. Unsuccessful.	1	0	1	2 hrs.
2. Surgical.....	2	1	1	
A. Huntington's method....	1	0	1	2 hrs.
B. Supravaginal hysterectomy	1	1	0	
3. No attempt.....	1	0	1	3 hrs.

poor risk for any operative procedure and so one's efforts should be directed toward the control of bleeding and the combating of shock. The hemorrhage may be minimized by pushing the inverted uterus up into the vagina and packing around it with sterile gauze. Intravenous dextrose or acacia followed as soon as possible by blood transfusion, the application of external heat and the administration of morphine sulfate and cardiac stimulants may be sufficient to overcome the shock. The situation, however, is always desperate. In one of the cases in this series in which no attempt was made to replace the inverted uterus but in which all other treatment, including blood transfusion, was used, the patient died in three hours. In another case after moderate but unsuccessful effort at replacement of the inverted uterus death occurred within two and three-quarters hours. These patients were all in deep shock and markedly exsanguinated. In three cases of intermediate replacement the uteri were replaced with great difficulty and all three patients died. In another case the uterus was replaced manually after an interval of eleven hours during which time active anti-shock treatment was carried out. In this case death occurred six hours after replacement of the uterus. Kellogg speaks of cases of inversion of the uterus in which constriction of the cervix has occurred as a subacute inversion. In many such cases, and in all cases of chronic inversion of the uterus, manual replacement is impossible. In such cases treatment must be effected by surgical means. Replacement of the uterus in these cases may be effected vaginally by Küstner's¹¹ opera-

11. Küstner, Otto: Methode konservative Behandlung der invertierten Inversio Uteri puerperalis, Zentralbl. f. Gynäk. 17: 945. 1893.

EXPERIMENTAL HIBERNATION OF
METASTATIC GROWTHS

PRELIMINARY REPORT

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In recent months there has been considerable publicity concerning hibernation or "freezing" in cancer cases. To ascertain the practicability of the method I undertook observations on six cases of hopeless metastatic cancer after visiting the clinic of Dr. Fay and Dr. Smith in Philadelphia and noting the methods they employed in their original observations on the effects of cold in cases of human cancer. In these six cases every known type of treatment had been given without results. It was my aim to observe whether or not hibernation would retard the cancerous process or alleviate the pain.

Fay¹ in 1936 first made repeated microscopic studies on the effect of reduced local temperatures on carcinomatous growths, and to him due credit must be given. He presented clinical, pathologic and biologic evidence that temperature plays one of the most important roles in the activation of embryonic cell growth.

In this article, hibernation as defined by Smith and Fay means a general reduction of body temperature below the critical level of 95 F., and refrigeration means the local application of cold by means of ice water circulated through a specially constructed apparatus designed to fit the structures of the cooling process.

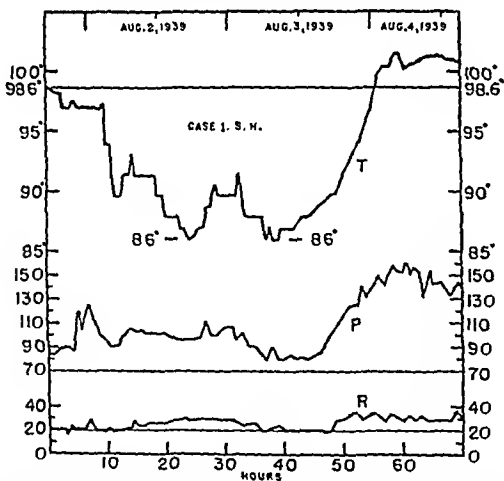


Fig. 1 (case 1).—Temperature, pulse and respirations during forty-three and one half hours of hibernation. Note the increase in pulse rate as the temperature returns to normal. Also the slight variations in the respiration.

The sequence of events leading up to this research is as follows:

1. Fay¹ studied the body surface temperature of various parts of the body, based on a neurologic dermatome plan. He noted that temperatures in

the extremities might fall from 12 to 22 degrees below the normal for the mouth, while the temperature of the breast, lying in the fifth thoracic segment, was extremely variable and showed an increase in temperature from 0.5 to 3 degrees above the temperature of segments lying within 2 inches on each side.

2. Malignant and metastatic bone tumors of the hands and feet are extremely rare, as has been shown by Coley and Higinbotham.² Mason³ noted that carcinomas of the hands and feet are equally rare and are of low grade malignancy. Pack and Adair⁴ brought

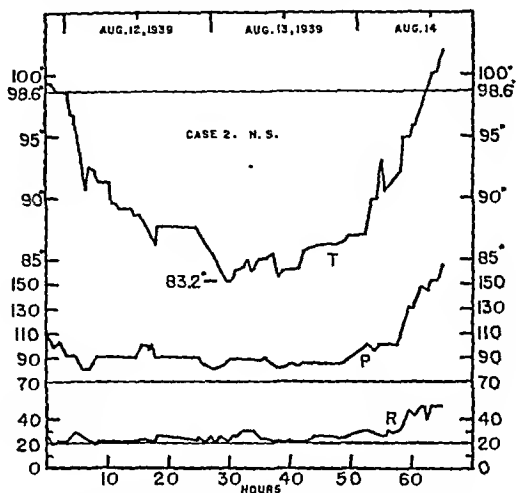


Fig. 2 (case 2).—Temperature, pulse and respirations during fifty-four and one half hours of hibernation. Note the rectal temperature of 83.2 F., the lowest temperature reached in this series of cases.

out the fact that melanoma is the only form of tumor occurring with any considerable frequency on the hands or feet. Geschickter and Copeland⁵ emphasized the comparative infrequency with which skeletal or bone metastases involve the extremities, while skeletal metastases occur more frequently in the pelvis, upper part of the femur, ribs, spine and skull, where there is a more abundant blood supply with resultant higher temperature than in the extremities.

3. The work of Huggins and Noonan⁶ demonstrated that red bone marrow present in the tail segments and metatarsal bones of newborn rats normally disappeared from the tail and the extremities in approximately two weeks, if the animals were exposed to environmental temperatures. If, however, the distal half of the rat's tail was implanted into the abdomen or back or the feet were amputated and placed in the abdominal cavity, red bone marrow persisted during the long period of observation. The portion of the tail exposed to environmental temperatures, however, showed the replacement of red bone marrow by yellow bone marrow, and it was concluded that the favorable temperature of the body was responsible for the retention of activity of the red bone marrow. This shows that heat or warmth is necessary for normal cell growth and mitosis. Conversely, since carcinoma is thought to be an excessive

2. Coley, B. L., and Higinbotham, N. L.: Tumors Primary in the Bones of the Hands and Feet, *Surgery* 5: 112 (Jan.) 1939.

3. Mason, M. L.: Carcinoma of the Hands and Feet, *Surgery* 5: 27 (Jan.) 1939.

4. Pack, G. T., and Adair, F. E.: Subungual Melanoma, *Surgery* 5: 47 (Jan.) 1939; Symposium on Tumors of the Hands and Feet: Introduction, *ibid.* 5: 1 (Jan.) 1939.

5. Geschickter, C. E., and Copeland, M. M.: Tumors of Bone, revised edition, New York, American Journal of Cancer, 1936, p. 494.

6. Huggins, C. B., and Noonan, W. J.: An Increase in Reticulo-Endothelial Cells in Outlying Bone Marrow Consequent upon a Local Increase in Temperature, *J. Exper. Med.* 54: 275 (Aug.) 1936.

From the Department of Surgery, Mercy Hospital-Loyola University Clinics.

The sisters, staff, residents, interns and nurses of Mercy Hospital and Dr. Maud Slye, of the University of Chicago, cooperated in making this experimental work possible.

1. Fay, Temple, and Henry, G. C.: Correlation of Body Segmental Temperature and Its Relation to the Location of Carcinomatous Metastasis: Clinical Observations and Response to Methods of Refrigeration, *Surg., Gynec. & Obst.* 66: 312 (Feb.) 1938.

or wild growth of cell tissue, cold in the form of hibernation or refrigeration should tend to decrease this growth, diminishing the blood supply to this outflow tissue.



Fig. 3 (case 2).—Appearance of the pelvis and upper parts of the femur, showing extensive metastases.

4. Smith⁷ has shown that varying the temperatures during incubation and growth periods of chick embryos is invariably followed by some alteration from normal, in retarding development, in producing malformations

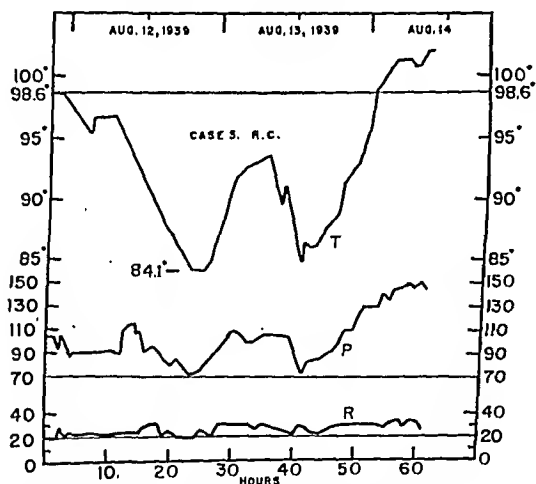


Fig. 4 (case 3).—Temperature, pulse and respirations during forty hours of hibernation. The patient reacted unfavorably.

and actual monsters or in disintegrating the embryonic tissue early in its effort to differentiate. There is a narrow range which might be spoken of as the optimal zone in which normal growth, differentiation and

organization of the tissues take place with the development of normal chicks. This range is between 97 and 104 F., although with either the upper or the lower level there will be an appreciable diminution in the number of viable chicks. Above 105 F. the temperature is too great for the successful growth and differentiation of embryonic tissue. At the lower level there is a critical temperature lying at approximately 95 F. at which there will be marked retardation in the development of the embryo and a viable chick will only rarely develop; if the chick does develop, there will be marked deformity.

Fay and Smith point out that regressive cell changes have been noted where local temperatures of from 40 to 50 F. have been employed constantly for from ten to twenty-eight days. Observations on general reduction in body temperature to below 90 F. have been carried out in the hope that deep metastatic lesions might be unfavorably influenced in their growth response to subcritical temperature, if these could be maintained for extended periods of time. In our hibernation we used

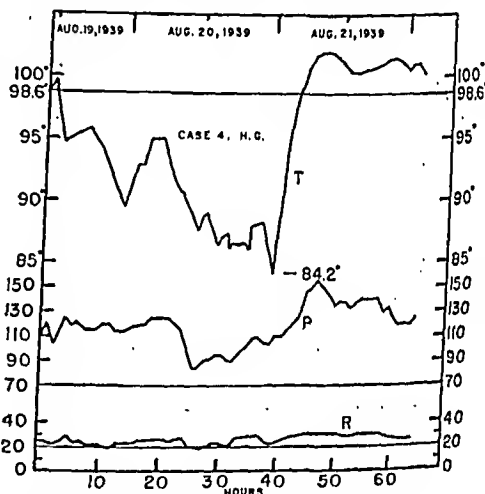


Fig. 5 (case 4).—Temperature, pulse and respirations during thirty one and one half hours of hibernation.

the temperature 95 F. as the upper level, the lowest temperature being 83.2 F. rectally. Fay⁸ reduced the temperature of one patient to 74 F. No one knows as yet how low a temperature may be reduced to be compatible with life in the human being.

A survey of the problem revealed that malignant tumors occur most frequently in areas associated with higher temperatures, such as the uterus, breast and gastrointestinal tract. Likewise the occurrence of metastatic carcinomatous lesions is usually in areas with higher temperatures, as the lungs, liver and brain, as well as the central, better vascularized areas of the skeleton, as the pelvis, upper part of the femur and spine. In other words, carcinoma thrives best in organs which contain an abundant blood supply and are warmer than certain other parts of the body, such as the extremities.

The aim of these experiments, therefore, was to reduce body temperature below the critical level of 95 F., which would produce a vasoconstriction of the blood vessels and cause less blood to flow through the cancerous organ. In this way I hoped to retard the growth of the cancerous lesion, for the time being at

7. Smith, L. W., and Fay, Temple: Temperature Factors in Cancer and Embryonal Cell Growths, J. A. M. A. 113: 653 (Aug. 19) 1939.

8. Fay, Temple: Personal communication to the author.

least. Up to the present time six hibernations have been performed in six cases. No deaths have occurred during the hibernation. Two of the six patients are alive and fairly comfortable seven and eight months after treatment. Several referred patients were refused hibernation because they were in the terminal stages with only a few hours' life expectancy. All our cases were hopeless. Each patient had received all the known orthodox treatments, such as high voltage roentgen therapy, radium, lead and calcium. A ray of hope was offered to them by hibernation, by which they sought to obtain relief.

PROCEDURE

A specially equipped air conditioned room was provided at Mercy Hospital in which a room temperature of 60 F. was maintained as closely as possible. Several

patients do not remember the shivering stage, although they may complain at the time of feeling cold. A considerable amount of paraldehyde was given throughout the entire course of treatment in the earlier cases

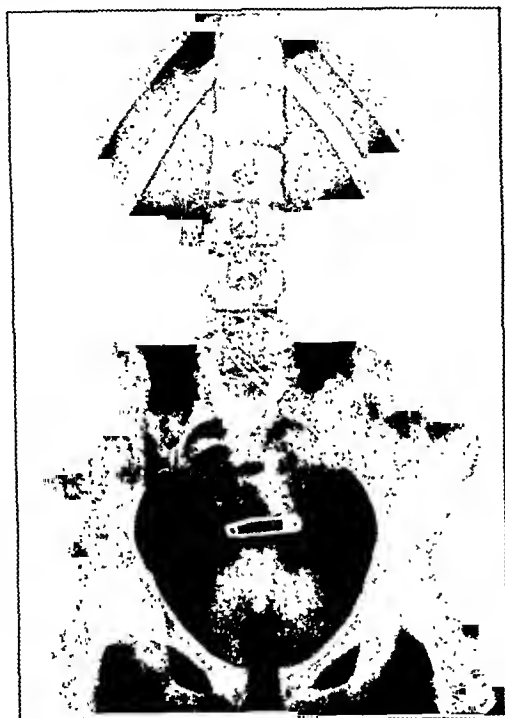


Fig. 6 (case 4).—Appearance of pelvis and upper femurs before hibernation, showing metastases (Aug. 21, 1939).

hours before hibernation was started sedation was given by mouth or rectum in the form of pentobarbital sodium, phenobarbital, paraldehyde, bromides or choral hydrate. Avertin with amylene hydrate was given rectally in the first three cases, while intravenous evipal soluble was given in the last three. Paraldehyde was introduced into the stomach through a nasal catheter in order to keep the patient quiet while the temperature was being lowered (Fay-McCravey technic). When the temperature reached 90 F. or less, little or no sedative was given, as the patients lay quietly in this state; they moved occasionally, could be aroused but soon returned to slumber, answered questions in a logical manner and even recognized members of the family. One patient was placed on a bed pan and had a voluntary micturition with the temperature at 86 F. The patients remember nothing from the time the anesthesia is administered until they come out of the hibernation. One patient, on arousing from the hibernation, asked when she was to get the "freezing treatment." The



Fig. 7 (case 4).—Appearance of the pelvis and upper parts of the femurs one month after hibernation. Note pathologic fracture of the right femur (Oct. 10, 1939).

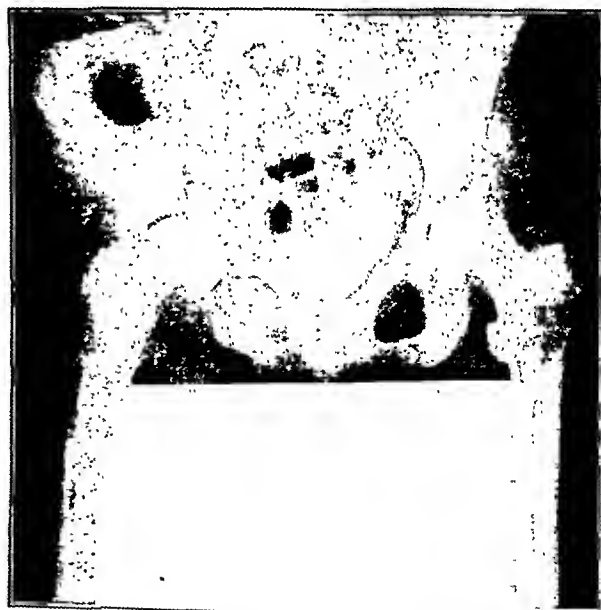


Fig. 8 (case 4).—Appearance of the pelvis and upper parts of femurs three months after hibernation. Note the rapid extension of the metastases, especially in the right ilium and femur. A plaster of paris cast of the leg and pelvis had been applied six weeks previously. The cast was removed, the roentgenogram taken and a new cast applied at this time (Dec. 19, 1939).

because it was feared that the patients would have a dreadful remembrance of the cold, but Fay's observations⁸ led me to use but little sedation after the temperature was down.

The procedure of hibernation is a very precarious one and should not be undertaken without adequate preparation and thought. The patient's family should be informed that death may occur at any time during

The nursing care is very exacting. Rectal temperatures, pulse and respirations are taken and charted at half hour intervals; almost constant blood pressure readings must be taken. Sometimes six special nurses are required in twenty-four hours, and the expense incurred for this service is great and in some instances almost prohibitive.



Fig. 9 (case 4).—Appearance of the pelvis and upper parts of the femurs five months after hibernation with a plaster of paris cast. Note the metastatic extension and the pathologic fracture (Feb. 2, 1940). (Serial roentgenograms of patient 1 reveal similar progressive metastatic extension.)

hibernation. Patient 6 in my series, with a temperature of 87 F., suddenly stopped breathing and the heart stopped; it was only by heroic measures instituted by the intern in attendance that vital functions were

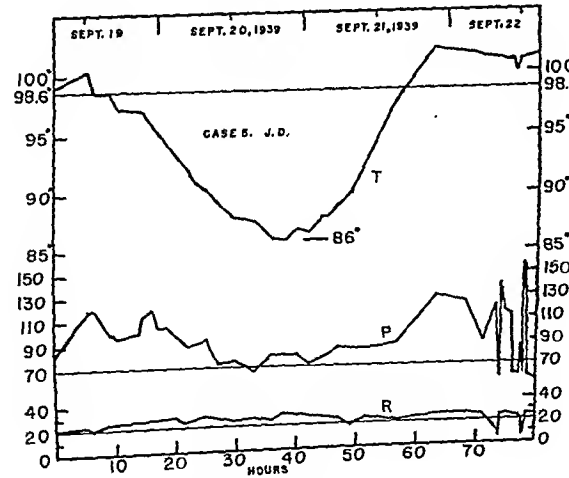


Fig. 10 (case 5).—Temperature, pulse and respirations during thirty-six and one half hours of hibernation.

resumed. We lost no patients during the hibernation, but it required constant attention by either a resident, an intern or myself, as well as the help of a graduate nurse and the floor nurses.

TABLE 1.—Basal Metabolic Rates

Case	Basal Metabolic Rate Before Hibernation	Basal Metabolic Rate During Hibernation	Comment
1. S. H.	— 9%	—32%; temperature 88.1 F.	Basal metabolic rate taken after 35 hours of temperature under 95 F.; after hibernation basal rate —9%
2. N. S.	+45%	—36%; temperature 84.2 F.	Basal metabolic rate taken after 36 hours of temperature under 95 F.
3. R. O.	— 7%	—37%; temperature 86.4 F.	Basal metabolic rate taken after 29 hours of temperature under 95 F.
4. H. G.	+ 7%	—4%; temperature +88.2 F.	Basal metabolic rate taken after 20 hours of temperature under 95 F.
5. J. D.	+30%	+28%; temperature 87.4 F.	Basal metabolic rate taken after 15 hours of temperature under 95 F.
6. D. G.	Not determined	Not determined	

The pulse and respirations usually run a smooth and even curve, as shown by the accompanying graphs, until the end of the hibernation, when the temperature

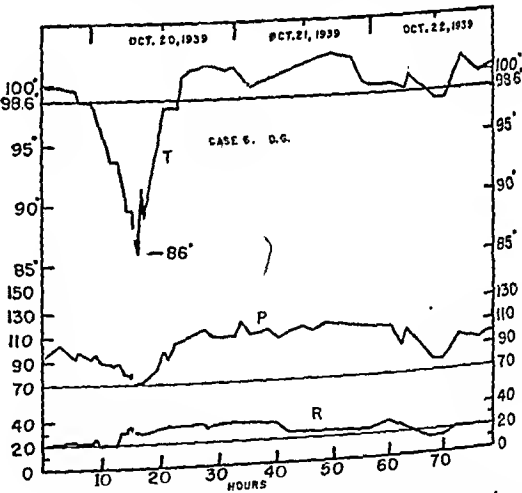


Fig. 11 (case 6).—Temperature, pulse and respirations during nine and one half hours of hibernation. Note the gap in the graph where the pulse and respirations ceased. Heroic resuscitation methods revived the patient. He was allowed to come out of hibernation for fear of death during treatment. His symptoms were not relieved and he died at home three weeks after hibernation, apparently from cachexia. Consent for necropsy was not obtained. This illustrates the dangers associated with this treatment.

is allowed to return to normal. Invariably the pulse rate then becomes very fast, sometimes reaching 160 to 180. This is the most dangerous time of the whole procedure and is the time when death is most likely to occur from peripheral vascular circulatory failure.

COMMENT

Little clinical research has been done on human beings with a temperature below 95 F. from the standpoint of physiology or physiologic chemistry. For that reason I undertook to make a few superficial observations. In all cases except the last the basal metabolic rate

was determined before and during hibernation, an attempt being made to determine the rate at the lowest possible temperature. The results of these tests are listed in table 1.

In case 2, with a rectal temperature of 84.2 F., the basal metabolic rate was —36 per cent, while before hibernation it was +45 per cent.

Blood chemistry determinations were made in most cases before and during hibernation and in some after recovery from the hibernation, as may be seen in table 2. An interesting observation was that the blood sugar was high while the nonprotein nitrogen and urea were decreased in the majority of cases.

TABLE 2.—Blood Chemistry Determinations

Case	Time Relative to Hibernation	Temperature, F.	Date	Nooprotein Nitro-geo	Urea Nitro-geo	Sugar	Chlorides	Great-oloe
1. S. H.	Before	86.9 rectal	8/ 2/39	17.0	8.3	153	...	....
	During	86.9 rectal	8/26/39	28.5	10.5	82	...	....
	After	86.9 rectal	8/26/39	28.5	10.5	82	...	....
2. N. S.	Before	84 rectal	8/11/39	32.0	14.0	115	440	....
	During	84 rectal	8/13/39	18.0	8.2	151	...	....
	After	84 rectal	8/16/39	18.2	9.0	125	350	....
3. R. C.	Before	86.4 rectal	8/11/39	36.0	15.0	110	420	....
	During	86.4 rectal	8/13/39	17.0	8.2	130	...	....
	After	102.2 rectal	8/16/39	17.8	8.0	130	440	....
4. H. G.	Before	88 rectal	9/16/39	34.0	12.0	100	410	....
	During	88 rectal	9/20/39	16.8	8.0	210	420	....
	After	100.3	9/22/39	19.0	8.9	90	420	....
5. J. D.	Before	87.6 rectal	9/ 2/39	82.0	58.0	80	480.4	6.1
	During	87.6 rectal	9/20/39	20.2	9.1	180	410	....
	After	87.6 rectal	9/21/39	24.0	10.0	100	412	....
6. D. G.	Before	87 rectal	10/ 7/39	28.8	10.2	78	...	1.51
	During	87 rectal	10/20/39	45.0	0	180	470	....
	After	87 rectal	10/20/39	45.0	0	180	470	....

The hemoglobin and red blood cells were increased, as would be expected, as the result of dehydration. The reticulocytes were increased during the hibernation period. The results of blood counts on these patients

The bowels did not function in any of the cases during hibernation. Catheterized specimens of urine were obtained every twelve hours. The amount of urine obtained gradually decreased every twelve hours unless fluids were given. The temperature of the urine was usually from 1 to 5 degrees lower than the rectal temperature, which was an interesting observation.

The illustrations show pulse, respiration and temperature charts of the six patients hibernated and roentgenographic appearances of two of these patients.

REPORT OF CASES

CASE 1.—S. H., a woman aged 52, had metastatic carcinoma of the bones from primary carcinoma of the breast. She is living eight months after treatment, with great relief of pain; no narcotics have been necessary. However, she had high voltage roentgen therapy before and snake venom after hibernation.

CASE 2.—N. S., a woman aged 38, had metastatic carcinoma of the bones from primary carcinoma of the breast which was removed by radical mastectomy four years previously. She died three days after hibernation, probably from peripheral cardiovascular collapse, since autopsy revealed no apparent cause of death. Pneumonia was not a cause of death in this or any of the cases in which autopsy was done.

CASE 3.—R. C., a woman aged 32, had metastatic carcinoma of the bones from primary carcinoma of the breast. She reacted unfavorably while undergoing treatment, as noted. She died seven days after hibernation; permission for necropsy was not obtained. She was generally debilitated and her life expectancy was short before treatment.

CASE 4.—H. G., a woman aged 26, had metastatic carcinoma of the bones from primary carcinoma of the breast, which was removed by radical breast amputation two years previously. She is living seven months after treatment; pain was relieved for the first three months in spite of pathologic fracture of the femur. She suffers from pain now, requiring codeine by mouth occasionally. She had some high voltage roentgen therapy before hibernation.

CASE 5.—J. D., a woman aged 30, had primary carcinoma of the cervix, grade 3, with generalized carcinomatosis. She

TABLE 3.—Blood Counts

Case	Temperature	Time Relative to Hibernation	Date	Erythrocytes	Hemoglobin	Leuko-cytes	Sedimentation Rate	Reticulo-cytes
1. S. H.	.....	Before	7/ 3/39	3,770,000	10.5 Gm.; 68.2%	4,350	.....	.....
	.....	During	8/ 1/39	.....	.....	.....	.....	.....
	.....	After	8/ 7/39	3,550,000	Same	6,300	.....	.....
	.....	.....	9/ 3/39	3,700,000	12.0 Gm.; 70%	6,400	20 mlo. to 1 hr.; Cutler method nor- mal in 10 mlo.	5.93%
2. N. S.	.....	Before	8/11/39	2,800,000	8 Gm.; 40% Sahli	7,000	.....	6.0%
	.....	During	8/13/39	4,900,000	10 Gm.; 58% Sahli	12,400	.....	22.0%
	.....	After	8/16/39	2,500,000	9 Gm.; 52% Sahli	10,000	.....	.....
3. R. C.	.....	Before	8/11/39	4,100,000	10 Gm.; 64.9%	8,400	.....	0.3%
	86.4 F. rectal	During	8/13/39	4,200,000	12 Gm.; 70%	5,200	.....	10.0%
	102.2 F. rectal	After	8/16/39	2,800,000	7.5 Gm.; 43%	9,000	14 min. to 1 hr.; Cutler method nor- mal to 8-10 mlo.	.....
4. H. G.	.....	Before	9/14/39	3,880,000	11.5 Gm.; 74.7%	6,200	.....	5.0%
	88.3 F.	During	9/20/39	4,000,000	10 Gm.; 58%	18,000	.....	1.2%
	100.3 F.	After	9/21/39	3,200,000	10 Gm.; 58%	7,800	.....	.....
5. J. D.	.....	Before	9/16/39	4,000,000	11 Gm.; 64%	7,000	.....	0.08%
	87.6 F.	During	9/20/39	5,600,000	11 Gm.; 64%	.....	.....	4.0%
	96.6 F.	After	9/21/39	4,000,000	9 Gm.; 52%	.....	.....	0.2%
6. D. G.	.....	Before	10/18/39	2,880,000	8.5 Gm.; 55.1%	14,200	.....	4.0%
	.....	During	.....	.....	.....	.....	.....	.....
	.....	After	.....	.....	.....	.....	.....	.....

before, during and after hibernation are shown in table 3. Sedimentation readings were taken in some cases with greatly reduced temperature, and these are also shown. Electrocardiographic studies were made in some cases. Blood pressure readings were generally low and in some instances the systolic pressure reached as low as 70.

died twenty-four hours after completion of hibernation. Necropsy revealed cerebral edema as the cause of death. The pathologic changes in kidneys and ureters secondary to carcinoma of the cervix could easily have been responsible for the cerebral edema.

CASE 6.—D. G., a man aged 32, had primary carcinoma of the sigmoid colon with generalized carcinomatosis; a colostomy was done in February 1939 (fig. 11).

SUMMARY

- 1. Six patients with hopeless metastatic carcinoma, ranging in age from 26 to 52 years, have been hibernated.
- 2. The lowest temperature obtained was 83.2 F. rectal.
- 3. The hours spent in hibernation ranged from nine and a half to fifty-four and a half. The serious condition of the patient accounted for the shortness of the nine and a half hour hibernation.
- 4. Basal metabolic rates were determined at the submerged temperature, the lowest being 84.2 F. rectal; the metabolism was lowered in every case in which the determination was made.
- 5. Primary carcinoma of the breast with metastases in the bones was the diagnosis in four of the six cases; generalized carcinomatosis of the abdomen from primary carcinoma of the cervix and sigmoid colon accounted for the other two.
- 6. No deaths occurred during hibernation; four patients died between twenty-four hours and three weeks after hibernation.

TABLE 4.—Summary of Cases of Hibernation

Case	Sex	Age	Diagnosis	Hours Under 95 F.	Results
1. S. H.	♀	52	Metastatic carcinoma of bones; primary carcinoma of breast; breast not removed	43½	Marked relief for 2 months; living 8 months; metastases progressing
2. N. S.	♀	38	Metastatic carcinoma of bones; primary carcinoma of breast; breast removed 4 years previously, radical operation	54½	Death 3 days later
3. R. C.	♀	32	Metastatic carcinoma of bones; primary carcinoma of breast; breast not removed	40	Death 7 days later
4. H. G.	♀	26	Metastatic carcinoma of bones; primary carcinoma of breast; removal of breast 2 years previously	31½	Relief of pain for 3 months; living 7 months; metastases progressing
5. J. D.	♀	30	Primary carcinoma of cervix, grade 3, 6 months' duration; generalized, carcinomatosis	36½	Death in 24 hours from cerebral edema
6. D. G.	♂	32	Primary carcinoma of sigmoid; generalized carcinomatosis	9½	No relief; death in 3 weeks

- 7. Two patients are still living seven and eight months respectively after hibernation; they were entirely free from pain for three months and at present no narcotics are necessary to relieve their discomfort.
- 8. Roentgenographic studies reveal that the metastatic bone lesions are gradually progressing (figs. 6, 7, 8, and 9).
- 9. High voltage roentgen therapy had been given to all patients before hibernation.
- 10. Necropsy was performed on two of the four who died; cerebral edema accounted for one death, but nothing tangible could be found to account for the second death. Pneumonia was not a cause of death in any case.

CONCLUSIONS

A state of subcritical temperature was induced in six cases and certain physiologic changes were observed. The relief of pain was the only result of possible value found in the two patients still living; but it should be noted that these patients had had high voltage roentgen therapy preceding hibernation which might in some degree be responsible for the relief of pain.

X-ray evidence reveals that one hibernation has not retarded the metastatic skeletal growth of carcinoma in these cases. In my opinion this procedure is hazardous and is not justifiable in the treatment of hopeless metastatic carcinoma.

Animal experimentations in this field might be of value as a preliminary to any future use of hibernation therapy for human cancer.
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Clinical Notes, Suggestions and New Instruments

CARDIAC MANIFESTATIONS FOLLOWING ERGOTAMINE TARTRATE THERAPY FOR MIGRAINE

J. BAILEY CARTER, M.D., CHICAGO

Since the isolation of ergotamine tartrate by Stoll¹ in 1918, enormous quantities have been used clinically. All available reports, analyzed by von Storch² for untoward effects of ergotamine tartrate therapy, revealed only forty-two serious sequelae, including eight fatal cases. Twenty-three occurred in obstetric cases, eleven in thyrotoxicosis and eight in miscellaneous disorders. This review also revealed that overdosage, and/or associated sepsis, obliterative vascular disease and/or cardiovascular disease play an important role in the production of ill effects. Death occurred in only one case³ unassociated with any of these factors.

Cardiovascular disease as a contributing factor is emphasized by Zimmermann,⁴ who reported that a patient having anginal attacks was given one 0.5 mg. dose subcutaneously and died an anginal death. Labbé⁵ gave a patient with organic heart disease a 0.5 mg. dose subcutaneously, daily for three days, with angina three hours after each dose and hemiplegia three days after the last dose. In a similar case, one 0.5 mg. dose given subcutaneously was followed by "syncopal" death.⁶

Although overdosage appears responsible for most of the ill effects of ergotamine tartrate therapy, doses of 3 mg. daily for twenty-eight days⁷ and a daily 0.5 mg. injection for over eighteen months⁸ have been used without apparent harm.

The first definite laboratory demonstration of the stimulant effect of ergot on the peripheral arteries was given by Kobert.⁹ Histologic changes of ergotism, reported by von Recklinghausen¹⁰ and confirmed by Lewis,¹¹ have been observed by Yater and Cahill¹² and Gould, Price and Ginsberg¹³ to follow the use of ergotamine tartrate.

Pathologically, the changes associated with ergotamine tartrate poisoning are vasospastic obliteration of the arteries.

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2. von Storch, T. J. C.: Complications Following the Use of Ergotamine Tartrate: Their Relation to the Treatment of Migraine Headache, J. A. M. A. 111:293 (July 23) 1938.
3. Hoehne: Klinische Erfahrungen mit den modernen Wehenmitteln insbesondere mit Gynegen, Arch. f. Gynäk. 125:356, 1925.
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7. Lichtman, S. S.: Clinical Experience with Ergotamine Tartrate, J. A. M. A. 107:148 (July 11) 1936.
8. Kelly, T. W. G.: Ergotamine Tartrate in Migraine, Lancet 1:777 (March 27) 1937.
9. Kobert, R.: Ueber die Bestandtheile und Wirkungen des Mutterkorns, Arch. f. exper. Path. u. Pharmacol. 18:316, 1884.
10. von Recklinghausen, Friedrich: Handbuch der allgemeinen Pathologie des Kreislaufs und der Ernährung, Stuttgart, F. Enke, 1833.
11. Lewis, Thomas: The Manner in Which Necrosis Arises in the Fowl's Comb Under Ergot Poisoning, Clin. Sc. 2:43 (Sept.) 1935.
12. Yater, W. M., and Cahill, J. A.: Bilateral Gangrene of Feet Due to Ergotamine Tartrate Used for Pruritus of Jaundice, J. A. M. A. 106:1625 (May 9) 1936.
13. Gould, S. E.; Price, A. E., and Ginsberg, H. I.: Gangrene and Death Following Ergotamine Tartrate (Gynergen) Therapy, J. A. M. A. 108:1631 (May 9) 1936.

intimal edema and hyperplasia, hyaline degeneration and thickening of the vascular walls, lymphocytic infiltration and frequent thromboses.

Significant symptoms suggestive of ergotism are those of (1) vascular occlusion, i. e., peripheral pain or paresthesias, coldness, cyanosis or blanching of the extremities, and (2) coronary occlusion, i. e., precordial pain or oppression and pain or paresthesia of the arm. Recurrence or persistence of these symptoms necessitates immediate search for organic pathologic change.

Ergotamine tartrate for the relief of migraine was first reported by Maier¹⁴ in 1926. Although the drug has no prophylactic value,¹⁵ it is the most effective¹⁶ specific¹⁷ treatment known for migraine. Results in recurrent attacks are just as dramatic and conclusive as when the drug is first used.¹⁸ It has given prompt relief of attacks in 90 per cent of more than 300 cases.¹⁹ Its use as an effective means of aborting or terminating migraine headaches has greatly increased. No ill effects from the use of ergotamine tartrate in migraine have been reported. The following report should therefore be of interest:

REPORT OF CASE

Mrs. R., aged 36, married fifteen years and five years a widow, contracted headache about 4 p. m. March 26, 1938. A physician gave a hypodermic of unknown content, without relief. At 1 a. m. March 27 0.5 mg. of ergotamine tartrate was given intramuscularly, and immediately palpitation, tachycardia, severe substernal distress and precordial pain with tightness in the throat developed, the headache being unrelieved. Thirty minutes later, one-third grain (0.02 Gm.) of pantopon was given hypodermically without relief. At 4 a. m. all complaints persisted in their original intensity. Auricular fibrillation was present with a ventricular rate of about 120 per minute. Administration of pantopon one-third grain was repeated hypodermically. At 6 a. m. the heart suddenly reverted to normal sinus mechanism. On disappearance of palpitation the patient slept between three and four hours. At 10 a. m. the precordial distress was less but moderately severe. The pulse rate was 72 and the rhythm regular. The heart borders were within normal limits by percussion. No murmur, no thrill and no other significant change were noted. An electrocardiogram made at 7 p. m. March 27 revealed nothing remarkable, and another record April 4 revealed, by comparison, no variation of significance. She has had no further trouble with her heart. A similar injection, one month previously, had resulted in substernal oppression without relieving the headache. The patient, 5 feet 2 inches (157 cm.) tall and weighing 102 pounds (46 Kg.), of feminine habitus, anxious and neurotic and with evidence of vasomotor instability, had measles, chickenpox and scarlet fever during childhood, typhoid in 1915, a tonsillectomy in 1916 and influenza in 1918. She has had recurrent headaches repeatedly diagnosed as migraine (?) since 1927, and hay fever from 1929, which was completely relieved by injections over a period of three summers. Appendectomy was done in 1930. Since 1935 sinusitis has complicated the symptomatology, confused the diagnosis and interfered with the therapeutic results of the headache. Owing to the dyspnea of allergic asthma associated with the hay fever in 1929, and preoperatively in 1930, the patient had submitted repeatedly to dental, ophthalmologic, gastrointestinal and extensive cardiovascular examination by various physicians, including several cardiologists, without significant observations.

For eight years the headaches occurred every two or three weeks. Since 1935 they have occurred daily. Chiefly frontal, they also involved the temporal regions, rarely alternating and

never generalized. Blurring of vision just before and near the end of an attack (at the height of the pain) occurred, but not constantly. Severe pain in the left eye occurred frequently. Lacrimation has been more constant. Nausea has been constant, the attack clearing up after the vomiting of bile. She insists that the only variation in the headaches since the onset of sinusitis in 1935 has been their frequency with daily occurrence. She also states that if she becomes nervous or excited or worried, especially when tired, she can develop, within half an hour, a headache indistinguishable from that described, all the characteristics being present even to nausea and vomiting with relief. No history of recurrent headaches, epilepsy, mental disease or allergy in the parents or grandparents was elicited.

COMMENT

Failure of relief by ergotamine tartrate is against a diagnosis of migraine.¹⁷ "The physiologic effects of a subcutaneous injection of ergotamine tartrate do not occur until ten minutes or more after injection—never immediately. Psychogenic reactions do. Ergotamine causes bradycardia by ten to twenty beats, rarely tachycardia. All these symptoms are those of acute anxiety—excepting auricular fibrillation."²⁰

Although the diagnosis of migraine appears doubtful and other possible etiologic factors cannot be eliminated, a distressing situation developed following an injection of ergotamine tartrate for headache. Care should be exercised in establishing the diagnosis of migraine.²¹ Use of ergotamine tartrate should be limited to migraine. It should not be used indiscriminately in the treatment of headache. Care should be exercised in the administration of ergotamine tartrate,²² even in small dosage and for migraine, since it can cause distressing and perhaps serious sequelae in the absence of the commonly recognized contraindications,² the result of individual susceptibility to the drug.²³ This may help to avoid unfair criticism and undue fear of the drug, which may result from reactions following its improper use.

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HEMOPHILIA TREATED BY VENESECTION

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AND

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In March 1931, as already reported,¹ a man aged 51 acutely ill with hemophilia was treated by venesection. In forty-eight hours he was almost free from symptoms. For long intervals he had been completely incapacitated because of joint symptoms occurring with the hemophilia. After this the patient, on the onset of symptoms, would come in for venesection on an average of about once every six weeks. From 400 to 500 cc. of blood was removed each time. The last venesection done by us was on June 23, 1939, when he was apparently in good physical condition except for nervousness and marked apprehension of death. He had been in rather good condition as a whole during the many years that we had been bleeding him, except for some discomfort in one knee. The x-ray film of this knee showed small cystic looking areas in the patella and lower femur.

He was admitted to a government hospital and its report is as follows:

"May 17, 1939: 300 cc. of blood withdrawn this date with improvement for nervousness, eye twitches, etc.

"June 10: Patient getting along well. Has had no bleeding episode as yet. Calm, not as nervous as before and feels O. K.

"June 21: To furlough this date at own request.

"July 16: Admitted to hospital. Returned from furlough this date. General condition same.

"July 17: To barracks this date.

"August 13: Patient readmitted to hospital this date appearing acutely ill with swollen right knee and leg. This is extremely painful on walking. Examination: Patient's face

20. von Storch, T. J. C.: Personal communication to the author.

21. von Storch, footnotes 18 and 16.

22. Comfort, M. W., and Erickson, C. W.: Untoward Effects from the Use of Ergotamine and Ergotamine Tartrate, *Ann. Int. Med.* 13:46 (July) 1939. von Storch.²

23. Lawson, G. B.; Jackson, W. F., and Gardner, J. E.: A Case of Hemophilia Treated by Venesection, *J. A. M. A.* 95:1443 (April 23) 1932.

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18. O'Sullivan, M. E.: Termination of One Thousand Attacks of Migraine with Ergotamine Tartrate, *J. A. M. A.* 107:1203 (Oct. 10) 1936.

19. Lennox, W. G., and von Storch, T. J. C.: Experience with Ergotamine Tartrate in One Hundred and Twenty Patients with Migraine, *J. A. M. A.* 105:169 (July 20) 1935. von Storch, footnotes 2 and 16. O'Sullivan, footnote 18.

and body covered with a beady cold perspiration. Skin clammy and patient extremely 'shaky.' Right knee and leg are swollen, tender, hot and very painful on motion even to the examining finger. Diagnosis: Hemorrhage into right knee joint.

"August 15: Patient has a large submental swelling pushing up floor of mouth, which is enlarged, deep and red looking, interfering with speech and swallowing. Probably is still bleeding in soft tissues of neck. Pulse is full and strong but condition doesn't seem very good; 275 cc. of blood under great pressure, removed.

"August 16: Patient seen this a. m. Appears seriously ill. Lower jaw and floor of mouth frozen, apparently with hemorrhage of yesterday evening. Patient dull, listless, cold and clammy. Pulse is 84 and weak. Respirations apparently normal. Right knee stopped hemorrhaging two days ago. Venesection with removal of 275 cc. last p. m. Some improvement reported following treatment. Patient seen again at 3 p. m., restless, semiconscious, pulse of 120 per minute, dry and complaining of very deep thirst. Believe condition generally remains same and that there is still some oozing in tongue. Will give 1,000 cc. 5 per cent dextrose by hyperdermoclysis to allay apparent dehydration. At 8 p. m. condition is poor. Tongue and floor of mouth enormously swollen and deeply hemorrhagic in color (color that of liver). Blood in neck is beginning to discolor the soft tissues. Patient is unable to talk or to swallow; makes known his wishes by pencil and paper. Is extremely anxious over his own condition to point of being frantic."

He died on Aug. 17, 1939, "death being due to massive hemorrhage and contributory cerebral edema."

In January and March 1938 we² treated two other hemophilic patients by venesection, with remarkably good results. One of these, a nephew of our first patient, was a boy aged 10 years. This boy did well until Feb. 8, 1939, when acute pain developed in the left sacro-iliac region. This pain became rapidly worse. Nine days from the onset, anesthesia and complete paralysis developed from the waist down. There was also paralysis of the rectum and bladder. There were a high fever, blood in the urine and subcutaneous hemorrhages.

Lumbar puncture was done February 19, two days after the onset of complete paralysis. The spinal fluid was not under increased pressure and microscopic examination showed only a few red blood cells. In the beginning venesection was performed but was apparently not helpful. This picture of sickness with paralysis, irregular fever, subcutaneous hemorrhages and bloody urine continued for seven weeks before death occurred.

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CHYLOUS PERITONITIS

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History.—A man aged 41 when seen March 16, 1939, gave a history of having been in perfect health on retiring the night before. He was awakened at 1 a. m. with severe abdominal pain about the umbilicus. The pain was constant but there was no nausea or vomiting. The hotel physician was called; he diagnosed the condition as acute appendicitis and advised immediate operation. He gave the patient one-fourth grain (0.016 Gm.) of morphine for the pain. When seen by me, the patient had had the hypodermic and the pain had been greatly relieved, but he looked acutely ill and was perspiring freely. He vomited once half an hour after the morphine had been administered. The temperature was 99 F. by mouth. The abdomen had a boardlike rigidity, and slight pain on pressure was elicited just to the left of the umbilicus. The patient was removed to the hospital, where flat plates revealed no air under the diaphragm. The white count was 10,800, with 56 per cent polymorphonuclears. While the latter procedures were being done, the pain began to recur with its previous intensity, being done, the pain began to recur with its previous intensity, and immediate operation was deemed advisable. The pre-operative diagnosis was perforated ulcer or mesenteric embolus. There was no history of trauma.

2. Lawson, G. B., and Graybeal, A. B.: Hemophilia Treated by Venesection, J. A. M. A. 111: 2104-2105 (Dec. 3) 1938.

The patient had three attacks of rheumatic fever, at 6, 16 and 18 years of age. A tonsillectomy was performed in 1918. These attacks of rheumatic fever left the patient with a double mitral lesion. His heart had always been well compensated and he had always been able to do his regular work. He had taken no medication for his heart at any time and never had any cardiac symptoms.

Operation.—A right rectus muscle splitting incision was made, and when the peritoneal cavity was opened the lacteals of the small intestine were seen to be very prominent and distended; this was twelve hours after he had eaten dinner. The mesentery about 12 inches from the ileocecal junction was covered with milky exudate for a distance of 3 or 4 inches. This area of mesentery was greatly thickened and somewhat contracted. A small amount, about 20 cc., of milky looking fluid was found in the dependent portions of the peritoneal cavity. This was aspirated and sent to the laboratory for culture and smear. The remainder of the gastrointestinal tract was normal in appearance. No perforations were found and the appendix appeared normal. Since the appendix presented itself in the wound, an appendectomy was performed. The pancreas seemed of normal consistency and there was no evidence of fat necrosis. The abdomen was closed in layers, one rubber dam drain being left at the lower angle of the wound down to the peritoneum.

Postoperative Course.—After the operation the patient was given pitressin every four hours in hopes of preventing post-operative distention. The day after the operation fibrillation set in and the abdomen became distended. Digitalization was quickly instituted and his pulse rate was brought down from 140-160 to 80-85 and kept there by maintenance doses of digitalis. The distention persisted for three days. The stomach was repeatedly lavaged, large amounts of gastric contents being removed each time, and finally the Levine tube was left in constantly. After five days his convalescence was uneventful. The superficial drain was removed in forty-eight hours. Digitalis was discontinued after ten days.

The patient has had no symptoms of any kind since operation and returned to work six weeks from the date of the operation. There is a slight weakness in the abdominal wound as a result of the distention, which broke three or four retention sutures. Laboratory examination of the peritoneal fluid showed no organisms, and a smear revealed only fat droplets.

COMMENT

In a search of the literature no record of a similar case has been found. Allan and Heggie¹ report a case of chylous peritonitis in which there had been a rheumatic heart condition since childhood and in which ascites developed periodically; in the course of years forty paracenteses were performed. The fluid aspirated each time was chylous. This case was fatal and autopsy revealed a fibrotic short, thickened mesentery. Brown² in January 1937 reported a case of chylous peritonitis following traumatic rupture of the thoracic duct. Nowhere have I been able to find a report of an acute case such as the one presented here. The conditions found at operation suggest that there was a rupture of one of the lacteals caused by obstruction of the thoracic duct, with back pressure on the smaller lacteals. This would seem plausible in view of the extreme distention of all the lacteals as seen at operation, and the plausible site of rupture was at the greatly thickened and contracted mesentery seen near the ileocecal junction. Whether or not the condition will recur remains to be seen, but to date the patient has had no symptoms of any kind. It is obvious that the operation had little to do with the patient's recovery, but in view of the possibility of a perforation of the intestinal tract it would have been extremely difficult to withhold operation.

121 East Sixtieth Street.

1. Allan, G. A., and Heggie, J. F.: Chronic Hyperplastic Peritonitis with Chylous Ascites in a Case of Rheumatic Carditis, with Auricular Fibrillation of Over Fifteen Years' Duration, Glasgow M. J. 120: 193-199 (Dec.) 1933.
2. Brown, A. L.: Traumatic Rupture of the Thoracic Duct with Bilateral Chylothorax and Chylous Ascites, Arch. Surg. 24: 127-131 (Jan.) 1937.

Special Article

CONFERENCES ON THERAPY

TREATMENT OF BLOOD DISORDERS

II. THE USE OF IRON AND OTHER METALS

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors. The next report will concern "Treatment of Blood Disorders: III. The Use of Transfusions."

DR. McKEEN CATTELL: We shall continue our general topic, treatment of disorders of the blood, with special reference to the therapeutic use of mixtures of metals and the effects of copper in relation to iron therapy. We shall hear first from Dr. Summerson, who will discuss the chemical and physiologic basis for the use of metals other than iron.

EXPERIMENTAL ASPECTS

DR. WILLIAM H. SUMMERSON: When one speaks about the value of metals other than iron in the therapy of anemias, interest is primarily directed to copper because of the demonstration that copper is associated with iron in the formation of hemoglobin in the animal body. This was experimentally established about a decade ago, and although it was challenged at the time the facts have withstood all attempts to break them down. I think that no one seriously questions nowadays, from a biologic point of view at any rate, the significance of copper in the processes of hemoglobin formation in the animal body.

The significance of copper in hemoglobin formation has been clearly demonstrated in a variety of animals such as the rat, the rabbit, the pig, the chicken, the sheep and the dog. Although a requirement for copper has not been conclusively demonstrated in the human being, it seems quite reasonable to expect that what is true for lower animals is also true for man. The difficulties of experimental demonstration in human beings obviously preclude any such conclusive demonstration as is possible in the case of experimental animals.

The mode of action of copper in the formation of hemoglobin is entirely unknown. The amounts of copper required are very small and out of all proportion to the amounts of iron that are converted to hemoglobin in the presence of copper. Thus far the only significant facts that have been demonstrated with regard to the way copper acts in the body are that it apparently does not influence either the absorption of iron or the storage of iron in the body but that it aids in the mobilization of stored iron and facilitates the conversion of stored iron into hemoglobin.

Because of the small amounts of copper required by the organism, attention has been directed to a possible catalytic action of copper on hemoglobin synthesis. Two possibilities suggest themselves in this connection. There is the possibility that a copper-containing, intermediate compound is necessary in the chain of reactions leading to hemoglobin synthesis and that copper is subsequently split off and the molecule ultimately built up into hemoglobin. There is also a possibility that copper is an activator for a specific enzyme system that is associated with the formation of hemoglobin in the

body. No conclusive evidence for either of these theories has as yet been adduced.

As I stated, there has been no clearcut demonstration of the necessity for copper in the formation of hemoglobin in the human being. The difficulty is probably due to the fact that the amounts of copper required by the organism are quite small, and it is difficult to control the experimental diet of the human being in such a way as to produce a copper deficiency. It has been shown that copper is present in small quantities in practically all foods, and a computation of the copper content of normal human diets has demonstrated that the dietary intake of copper varies, depending on the type and amount of food eaten, from about 0.8 mg. of copper a day for children to about 4.8 mg. a day for adults.

How much copper does the human organism need? One way to get an answer to that question is by copper balance studies. On the basis of such studies it has been estimated that children require as an optimal daily intake about 0.1 mg. of copper per kilogram of body weight. If you take that as the average daily requirement of copper for the human being, you can see that a 70 Kg. man would require 7 mg. of copper a day. I just cited 4.8 mg. as the daily copper intake on an average diet, so there is not a great discrepancy between the copper needs of the human being and the amount of copper that he gets in the diet. The possibility arises, and this is suggested I think by clinical experience, that there may be a chronic copper deficiency, that is, a state in which small amounts of added copper would be of value. This accords with the clinical experience that small amounts of added copper are sometimes of value.

The best results from the use of copper in the therapy of hypochromic anemia in the clinic have been obtained in the anemias of infancy, and there are increasing numbers of case reports in the literature which show, but by no means conclusively, some effect associated with the addition of copper to iron in the therapy.

With regard to the treatment of hypochromic anemia occurring in adults, the evidence is even less impressive, probably because it is so much more difficult to produce a copper deficiency anemia in the adult than in the young growing organism. However, it has been reported that certain cases of stubborn hypochromic anemia relatively resistant to iron administration have responded more favorably to the addition of copper along with the iron than have controls to whom iron alone was administered. All of these results are complicated by the fact that practically all commercial iron preparations contain varying amounts of copper, and I think that in no case in the clinic have the experimental conditions been as carefully defined as in the laboratory. Naturally clinical definition is less feasible.

The general view at the present time with regard to the clinical value of copper might be summed up as follows: Most patients with hypochromic anemia seem to require no added copper and get along perfectly well with an ordinary iron salt, yet there is also a certain proportion of cases in which the addition of copper along with the iron seems to lead to greater increases in the hemoglobin level in the blood than without the added copper.

Another element has become of interest in the last few years with regard to hemoglobin formation, and that is cobalt. Cobalt will not replace copper in the usual experimental animals; that is, in the rat and in certain other animals it has apparently no influence on

hemoglobin formation. It is certainly not comparable to copper in the rat. But it has been shown to be entirely comparable to copper in one species, namely, sheep. There are a number of areas throughout the world where sheep suffer from a sickness which is known by various local terms but which is almost invariably characterized by an anemia similar to chlorosis. It has been shown that the addition of neither iron nor copper to the diet will cure this anemia but that the addition of small amounts of cobalt will bring about a rapid and complete cure. So far as I know that is the only experimental demonstration of the value of cobalt in hemoglobin synthesis in nutritional anemia. Cobalt has, however, another action which is of interest, namely, that in the normal animal it produces a polycythemia. That fact has proved of some value in the study of experimentally induced polycythemia in animals. The significance of cobalt in the treatment of clinical anemias I think is quite indefinite at the present time. The chief interest in this metal is associated with the demonstration that at least in one species cobalt is an essential element for the conversion of iron into hemoglobin. There is also the interesting fact of the marked stimulation of the bone marrow associated with cobalt administration leading to an experimental polycythemia.

DR. CATTELL: Are there some questions we might put to Dr. Summerson now?

DR. HARRY GOLD: Do I understand that hemoglobin formation does not go on in the absence of copper?

DR. SUMMERSON: That is certainly true for all the animals that I listed.

DR. CLAUDE E. FORKNER: But it may go on in the presence of other elements? Will not other elements substitute for copper?

DR. SUMMERSON: I don't believe so. That was one of the points that was brought out at the very beginning of the work on copper. I think most people agree that stimulation due to other elements than copper is minimal, if present at all, and, if it is obtained, that it is probably due to contamination with copper in the preparations.

DR. GOLD: Are arsenic and manganese out of the question now as substitutes for copper?

DR. SUMMERSON: That is a very interesting question. In one series of experiments arsenic was the only element aside from copper that showed a very slight stimulating action, but it did not compare with that following copper. As far as we know, manganese has no function in hemoglobin formation, but there is no doubt that it is necessary for normal growth.

DR. PAUL REZNIKOFF: What about germanium? That was long considered an important element.

DR. SUMMERSON: Its importance certainly does not apply to the rat.

STUDENT: Have these sheep you mentioned been put on a copper deficient diet? In other words, was cobalt a substitute or was there some additional factor?

DR. SUMMERSON: On a milk diet lambs—I always refer to young animals—develop an anemia. This is cured by the addition of copper along with iron to the diet. At the time these experiments were made, the significance of cobalt was not realized. In the experiments I mentioned a little while ago it was found that the presence of iron as well as copper in an otherwise

adequate diet for the pastoral lamb had no influence on the disease, but that cobalt had to be added along with the iron.

STUDENT: Is that taken as evidence that the cobalt acts as a direct substitute for the copper?

DR. SUMMERSON: I would say that you can demonstrate in one type of experiment that the animal needs copper. You can demonstrate in another type of experiment that he also needs cobalt. It seems to me that the evidence indicates a need for both cobalt and copper along with iron in the case of the sheep.

DR. FORKNER: I should like to ask Dr. Summerson whether in his experiments there has been any indication that copper produces any untoward effects, perhaps over a long period of time. I think a great many clinicians hesitate to use copper because they fear some possible toxic effect. I am thinking, for instance, of Mallory's work on hemochromatosis.

DR. SUMMERSON: That is always a possibility, but the amounts of copper that one gives are very small. Animals have been maintained on a mineralized milk diet, that is, milk plus copper, iron and manganese, for long periods and they appear to be quite normal on that diet. No one has ever detected any pathologic effect of copper in the amount that is ordinarily sufficient to stimulate maximal hemoglobin formation. If large amounts of copper are given, then of course it is quite toxic.

IRON, COPPER, COBALT, MANGANESE, GERMANIUM, NICKEL

DR. CATTELL: Dr. Reznikoff, will you discuss from a practical standpoint the use of the several metals which have been mentioned?

DR. REZNIKOFF: As Dr. Summerson has pointed out, most of the work—and I think probably the best work—on the value of copper and cobalt in anemias and other conditions affecting the blood has been done on animals.

Among the workers who have studied human beings, mostly children, Sachs, of Omaha, I believe has contributed the most careful quantitative work. Sachs and his co-workers came to the conclusion on the basis of the determination of copper and iron in the blood of children that there was a reciprocal relationship between these two metals in the blood; that is, when iron was increased copper was decreased, and vice versa. Not only was that true of the anemias, but they found that the relationship also held in a few cases of polycythemia; that is, as the blood count in polycythemia decreased under treatment, the iron content of the blood decreased but the copper content increased. They postulated that copper may be mobilized as a stimulator of hematopoietic activity. They also felt that it acted in the capacity of an emergency oxidative catalyst. This suggests that copper is not an essential part of the structure of hemoglobin but, as Dr. Summerson has pointed out, really a catalyst.

With regard to adult patients we are confronted with problems which are not easy of solution. We can accept the experimental work on animals, but with practically all of our patients we cannot find that any of these adjuvants are of any significance. The probability is that the principle holds true that copper is necessary for the development of a normal hemoglobin content in the red blood cell; but, possibly because the necessary amount of copper is so small that it is always supplied in food or medication, or for other reasons, the fact

remains that in adult hematology we never find it necessary to give copper to a patient. There are products on the market which contain copper and iron, but I do not know of any case in which I felt copper should be administered, and I do not know of any reports in the literature which make it clear that without copper the anemia of adult patients would not have been cured.

As for metals other than iron and copper, Kato, at least in his work up to 1937, felt very strongly that in infants cobalt could act as a definite accelerator of red blood cell and hemoglobin formation. He felt it was necessary for both, but there again he assumed that cobalt was just a catalyst. There are some workers, and I think Elvehjem is one of them, who think that manganese can be ranked as an equivalent of copper so far as rat growth is concerned; however, they do not commit themselves as to the role of manganese in the formation of hemoglobin. There are suggestions throughout the literature that manganese, cobalt, germanium and perhaps nickel can simulate the action of copper but in much less degree, and thus there would be only a quantitative difference. For practical purposes copper is the most effective, but perhaps we should not exclude entirely the possibility that these other elements may have some effect on hemoglobin formation.

In the literature on the effect of copper and cobalt in anemia, I have not found what I could call a crucial experiment, and that would be this: When you give iron to an iron deficient patient who has an anemia, there is a reticulocyte rise of varying degree before the hemoglobin begins to rise. Some time after the reticulocyte count returns to the base level or establishes a plateau, copper should be administered to see if there is any secondary reticulocyte effect. If a secondary reticulocyte rise is produced, this would be fairly good evidence that an extra stimulant was thrown in which was not present when iron alone was given, or iron plus the contaminations.

Our interest in cobalt in adult patients centers not so much in anemia as in polycythemia. As Dr. Summerson has said, there has been a good deal of work on the effect of cobalt in polycythemia, but that it plays any role in this condition has been shown only with regard to animals. With the polycythemic patient studies of the blood show that there is not any increase in the new red blood cells as the result of cobalt, if we take reticulocyte counts as a gage; also, if we examine the bone marrow, no increase in the number of immature cells is seen. The Barrons found that the administration of ascorbic acid prevented the cobalt experimental polycythemia, and therefore they postulated that ascorbic acid is one of the regulators of hematopoiesis. We accept the fact that ascorbic acid is a regulator of hematopoiesis, but our experience has been that if vitamin C is withheld an anemia develops; in other words, ascorbic acid is, if anything, a factor in producing red blood cells and not in inhibiting red blood cell formation, as seemed to be the case in the experimental cobalt work. However, we may be dealing with two different functions; that is, cobalt may produce polycythemia in a different way than ascorbic acid produces a normal red cell response.

Davis has recently been working with polycythemia induced by cobalt chiefly in dogs. He found that if he gave liver extract, which must be unheated, or if he gave choline derivatives (I believe he used choline hydrochloride for the most part) he could prevent the

polycythemic effect of cobalt. Immediately clinicians began to use liver extract of the type that he mentioned for patients suffering from polycythemia. It was soon found by Major that it had no effect on polycythemic patients.

IRON AND COPPER DEFICIENCY IN THE INFANT

DR. CATTELL: Next I shall ask Dr. Smith to make a few remarks about the problems that arise in the treatment of anemia in children.

DR. CARL H. SMITH: The previous speakers have referred to iron or iron in combination with copper and other adjuvants in the treatment of the anemias of infancy and childhood. In discussing the need of added copper from a clinical standpoint, it should be noted that not all the striking results obtained with animals can be transferred directly to anemic infants and children. In spite of the fact that the nutritional anemia of infants closely resembles the iron deficiency anemia of laboratory animals induced by milk diets, the reports concerning the need of copper as a supplement for the anemic infant have been conflicting. It seems to me desirable, therefore, to review the problem of iron deficiency in the infant both as to its pathogenesis and as to its treatment with iron and other metals.

At birth, with the termination of anoxemia, the fetal polycythemia is no longer needed and destruction of red cells and hemoglobin occurs. Figures for the hemoglobin value at birth vary from 16 to 23 Gm. per hundred cubic centimeters, according to studies from various parts of the world. This variation probably depends on the climatic conditions and the racial, hygienic and dietetic factors prevailing in the particular localities where these studies were conducted. The most pronounced drop in hemoglobin occurs after the first week or ten days of life, after which the hemoglobin continues to fall until the age of from 6 weeks to 2 months, when a level is reached. Except for a slight rise occurring between 3 and 6 months, the hemoglobin level for normal children fluctuates within a narrow range during the first two years of life. The values for normal infants from the age of 2 months to the end of the first year, according to recent studies, range from about 10 to 12 Gm. of hemoglobin per hundred cubic centimeters of blood. Therefore, when we speak of nutritional anemia in infants we mean that the hemoglobin value is found to be consistently below this lower limit of 10 Gm.

The question has often arisen Should these values of from 10 to 12 Gm. be elevated? In obtaining an answer to this an inherent difficulty arises from the lack of data as to what the optimum hemoglobin value is; that is, what value will promote the greatest growth and development of the infant. Although we usually find that normal infants on adequate diets have an average hemoglobin value of about 11 Gm., it is possible by the administration of iron to boost this figure. For instance, Elvehjem and his associates were able to raise the hemoglobin value of normal infants from between 9 and 11 Gm. to 12 and 13.5 Gm. per hundred cubic centimeters of blood by the daily addition to their diets of 25 mg. of iron and 1 mg. of copper. It is not yet certain, however, whether it is desirable to maintain these higher levels and we do not know, for instance, whether raising the hemoglobin by routine iron administration will decrease the susceptibility of these infants to infection. Closely controlled observations would be

necessary to determine the advantage of the elevated hemoglobin with respect to morbidity, mortality and growth.

Since we do not have these facts, the range of hemoglobin values obtained for infants whose physical development measures up to normal standards should be used as the basis for comparison. As we have said, following the neonatal period the full term infant of average birth weight and in good nutrition as seen in private practice has an average hemoglobin of 11 Gm. or more, and we know that the majority of these babies get along perfectly well. For practical purposes, therefore, the value of 11 Gm. should be designated as the lower limit of normal. This is an arbitrary figure, however, and it is not unusual to encounter infants, particularly premature babies or twins, who appear normal in every respect but whose hemoglobin after the second month falls somewhat below this value.

What factors contribute to the development of a nutritional anemia in infancy? Particular attention should be directed to the hemoglobin level of all infants who are growing rapidly, to premature babies and twins, to those troubled by frequent infections, to those whose mothers during the latter part of pregnancy were known to have suffered from a profound anemia, and to infants who during the neonatal period were suffering from a blood dyscrasia such as primary anemia of the newborn or who have survived the condition of icterus gravis. Prolonged lactation or a diet largely of milk, especially when associated with the refusal of solid food, constitutes an outstanding cause of nutritional anemia. Until solid foods are introduced in the diet, the intake of iron and probably of other adjuvants concerned with hemoglobin synthesis is meager, and the young infant depends largely on prenatal stores and products derived from blood destruction for the fulfillment of its metabolic requirements.

Another question is "Can the initial sharp drop in the hemoglobin level after birth be prevented?" Many studies have been conducted with full term and premature infants in the endeavor to forestall the low hemoglobin levels reached at 6 weeks to 2 months of age by administering iron, with or without adjuvants, even as early as in the first weeks of life. It has been demonstrated that the reduction in hemoglobin occurring during the first six weeks of life could not be prevented, although the terminal level reached was not so low and the subsequent hemoglobin values were higher than in the untreated cases. The available evidence supports the conclusion that the early drop in hemoglobin is physiologic and due to intrinsic factors.

On the other hand, experience has shown that the hemoglobin level after the second and third months can be elevated by iron administration instituted at this time, and we usually begin treatment if the value falls below 10 Gm. per hundred cubic centimeters of blood. With premature infants and twins, hemoglobin determinations should be begun during the second month of life. With normal full term infants, these may be postponed until the third month. Nutritional anemia should be looked for in all infants of 6 months or over, since at this time iron stores are usually depleted, although it may develop earlier. Parsons has described cases occurring at or shortly after birth. By following closely infants whose hemoglobin fluctuates about the level of 10 Gm., carrying out tests at frequent intervals and instituting anti-anemic therapy if the same or lower values are consistently obtained, treatment is confined to infants

in whom an iron deficiency becomes apparent. This obviates the necessity for the routine administration of iron to all infants.

How should these babies with nutritional anemia be treated? While adequate food iron usually insures protection against the development of anemia in infancy, it cannot be depended on in treatment and an inorganic iron salt is essential for cure. The choice of the preparation for the infant as well as for the adult depends on its known activity, ease of administration, tolerance and inexpensiveness. In the case of the infant, the solubility also is particularly important, since inorganic salts that are readily ingested by an adult may be unsuitable for a baby. The iron salt preferably should be soluble. Reduced iron and saccharated ferrous carbonate, because of their insolubility, have the disadvantage of requiring suspension, but they can be given to older children. Although there are several soluble iron salts suitable for use in infancy, the efficacy of which has been amply demonstrated, my own experience has been with two of these, namely iron and ammonium citrates and ferrous sulfate. The former may be prescribed in a 10 per cent solution or in capsules. For the infant, the capsules must be opened and the contents dissolved in a suitable vehicle. It is important to emphasize that in administering iron to a baby one has to tell the mother exactly how it is to be given. One has to tell her specifically "Take the iron salt out of the capsule and put it in the baby's orange juice, milk or water." I once had the experience, however, of having a father call me up to tell me that after two weeks the baby had finally swallowed a capsule.

The dose of iron depends on a number of considerations. The absorption of iron from the intestine of the infant is subject to a variety of influences, in part similar to those of the adult and in part resulting from local conditions incident to its own stage of development. Therefore a specific dosage cannot be definitely assigned for a particular age. Furthermore, the dosage should be controlled by frequent hemoglobin estimations and the tolerance of the infant for the preparation. It is advisable to start treatment with a small dose, let us say 5 grains (0.3 Gm.) of iron and ammonium citrates, since at times vomiting or diarrhea follows its use. Should these untoward symptoms occur during the course of treatment, the quantity of iron may be temporarily reduced or another iron salt may be employed. In the infant with nutritional anemia of a moderate grade, the desired hemoglobin level can usually be obtained with a daily dose approximating 1 grain (0.06 Gm.) of iron and ammonium citrates per pound of body weight. Thus the total dose is usually from 15 to 30 grains (1 to 2 Gm.). With more severe anemias in older infants, 45 grains (3 Gm.) or more is sometimes required. With the continued use of the maximum dose, however, the urine should be examined for evidence of kidney irritation. In recent years we have employed ferrous sulfate almost exclusively. A daily dose of from 6 to 8 grains (0.4 to 0.5 Gm.) of this salt has been sufficient to produce a satisfactory reticulocyte response and the restoration of the normal hemoglobin, red cell and hematocrit levels within a period of from two to three weeks. The smaller dose required in the case of the ferrous salt has the advantage of minimizing the likelihood of gastrointestinal disturbances. It is prescribed in infancy in the form of an elixir, each teaspoonful containing 2 grains (0.13 Gm.) of ferrous sulfate or approximately 26 mg. of metallic iron. It must be emphasized that the most favorable

results with iron therapy in infancy are obtained by the exercise of skill in administration of these salts, and the possibility of refusal and of gastrointestinal upsets necessitates a familiarity with the use of more than one preparation. One cannot depend on one iron salt alone.

The next question is Should copper be used? In our experience it has not been necessary to employ copper in the treatment of nutritional anemia, although there are studies to show that its addition in minute traces results in prompt acceleration of hemoglobin production from a previously stationary level. The results on this point are conflicting. The studies of Elvehjem have already been referred to in which iron and copper raised the hemoglobin of normal infants as high as 13.5 Gm. per hundred cubic centimeters of blood, whereas hemoglobin levels of 14 Gm. were obtained by Stephenson with the use of iron salts without any copper supplements. For the occasional infant in whom copper deficiency may occur, as evidenced by a refractory state of the anemia, minute amounts of this element, 1 mg. daily (equivalent to 4 mg. of copper sulfate) may be included in the iron prescription.

Although achlorhydria sometimes accompanies iron deficiency in infancy, the administration of hydrochloric acid is without value. Parenteral liver preparations are also unnecessary.

DISCUSSION OF QUESTIONS

DR. CATTELL: The meeting is now open for general discussion. Are there some questions you would like to put to Dr. Smith?

DR. REZNIKOFF: I should like to ask Dr. Smith whether in his opinion the work published by Dr. Hugh Josephs at Johns Hopkins on babies who are recovering from pneumonia and have anemia is fairly conclusive. To all these anemic children he gave iron in rather large amounts and could get no rise in hemoglobin until he gave them copper.

DR. SMITH: It is true that Josephs obtained poor results with iron alone in some of his cases of convalescent pneumonia in infants, but the majority did show a definite response although a maximum rise in hemoglobin did not occur until copper therapy was instituted. My own experience is that iron therapy is unsatisfactory during the stage of acute infection, but once this has subsided then it is entirely effective without the addition of copper. The termination of infection is difficult to detect, and low grade fevers may persist without obvious cause. In such a case the lack of response to iron may prove of clinical importance. When iron in adequate doses—from 6 to 8 grains of ferrous sulfate daily—is administered to a young child with anemia of moderate severity, the absence of a reticulocyte response and a failure of the hemoglobin to return to a level of about 11 Gm. per hundred cubic centimeters of blood and of the hematocrit to reach a value of 36 per cent in from two to three weeks suggest continued activity of the infectious process or that the diagnosis of anemia on a purely nutritional basis is to be questioned. When anemia accompanies prolonged infection, even of low grade, it is more expeditious to treat the infant or child with blood transfusion than to temporize with iron.

DR. REZNIKOFF: Dr. Smith uses 6 grains of ferrous sulfate and that is equivalent to about 100 mg. of iron a day. It appears that with the infant as well as the adult larger doses of the ferric salt are given in order to obtain a satisfactory therapeutic effect.

DR. JANET TRAVELL: What is the usual dose of iron when given in the form of the ferric ammonium citrate?

DR. SMITH: For the ferric ammonium citrate we use the brown scales, which contain not less than 16 per cent of iron. The effective dosage for infants is roughly 1 grain of this salt per pound of body weight, which corresponds to 10 mg. of metallic iron per pound of body weight, does it not?

DR. TRAVELL: That is, for a 20 pound baby the usual doses would be 100 mg. of ferrous iron and 200 mg. of ferric iron. It is interesting that 100 mg. of iron is the dose used by Schlutz, Morse and Oldham in comparing the relative effectiveness of these same two iron salts, ferrous sulfate and ferric ammonium citrate, in nutritional anemias of infants. They found that 100 mg. of iron supplied as iron and ammonium citrates and 100 mg. of iron supplied as ferrous sulfate were equally efficacious.

DR. SMITH: We have found that at times even larger doses of iron and ammonium citrates may be required than the doses suggested. That caution must be exercised with the larger amounts was illustrated in our experience with an infant for whom the dose of iron and ammonium citrates was gradually raised to 90 grains (6 Gm.). With this amount kidney irritation occurred, manifested by an increased number of red cells and casts in the urine as determined by the Addis method.

DR. FORKNER: I think it ought to be pointed out that forty or fifty years ago very large doses of iron were given as compared with those we use now. Then as the result of the metabolic studies of Stockman and others demonstrating that little of this iron was utilized, smaller doses came to be recommended. For many years small and inadequate doses of iron were given, probably because the problem was attacked too scientifically, and only after about 1920 was it again discovered that large doses of iron had to be given in order to obtain an optimal effect.

DR. SUMMERSON: I think it is very interesting that the optimum dose of iron recommended by Dr. Reznikoff at our last conference is from ten to twenty times the amount of iron apparently required by the body, taking the average daily requirement as 15 mg.

DR. FORKNER: One point which Dr. Smith touched on was the element of infection. If a patient has fever or infection one can expect very little effect from iron or any other hematopoietic stimulating agent so that one has to take that factor into account. Frequently patients in the ward are given large doses of iron when they have an active infection and one wonders why they don't respond, but it is pretty clear that infection markedly inhibits the utilization of iron.

DR. REZNIKOFF: Dr. Forkner has brought up a very important point. In all this discussion we have to consider what is the condition of the patient. For example, it is fairly well agreed that the amount of iron utilized by the organism to produce hemoglobin depends to a considerable extent on the needs of the organism.

We once did an interesting experiment with potassium ferrocyanide. If one gives a normal animal potassium ferrocyanide, about 100 per cent is excreted in the urine. The same was true when we took it ourselves. None of the iron was apparently utilized. But an animal with an iron deficiency anemia is able to retain about one third of the iron given. That was a striking illustration of the fact that various factors like iron depletion, infection and many other conditions probably occurring in patients will determine the utilization of iron.

DR. TRAVELL: A striking experimental demonstration of the influence of need on utilization has been obtained recently by Hahn and his collaborators by following the course of a radioactive isotope of iron in the body. By this technic it is possible to distinguish between the newly absorbed iron and that previously present in any form or location. When Whipple's standard anemic dogs were fed radioactive iron, within twenty-four hours an appreciable amount had accumulated in the spleen, liver, bone marrow, red blood cells and blood plasma. About fifty to a hundred times as much iron was absorbed by the blood and viscera in the anemic animal as was absorbed in normal dogs or dogs rendered plethoric by blood transfusions, when similarly treated. The authors are inclined to believe that absorption is regulated selectively by the mucosa of the small intestine and not by the concentration gradient of iron existing between the gastrointestinal contents and the blood plasma.

SUMMARY

DR. CATTELL: In summarizing today's conference, the following points stand out:

Copper has been shown to play an important role in hemoglobin formation in a variety of experimental animals. All that is known regarding its mode of action is that in some way it facilitates the conversion of stored iron into hemoglobin. Although it is reasonable to assume that it has a similar function in hematopoiesis in human beings, it has been impossible to demonstrate this, except possibly in the nutritional anemias of infancy. The difficulties are these: First, the daily requirement of copper is very small and it is not feasible to control the diet so as to produce a copper deficiency; second, nearly all commercial preparations of iron contain copper in varying amounts, often enough to supply an existing copper deficiency. In adults, it is questionable whether any benefit is derived from the addition of copper to iron therapy.

Cobalt is another element which under certain conditions can stimulate erythrocyte and hemoglobin formation. This action is seen in the production of experimental polycythemia by cobalt, and also in the cure of certain nutritional anemias of sheep. In other species, however, cobalt has not been proved of value in the treatment of nutritional anemias. It has not been established that any other metals are essential for hemoglobin synthesis.

Iron therapy in the nutritional anemias of infancy presents problems which are fundamentally similar to those encountered in adult hypochromic anemias and discussed at our last conference. Again the clinical impression is that ferrous iron is more effective than ferric iron. The dose in infants seems to be roughly proportional to that recommended for adults, calculated on the basis of body weight, usually about 15 to 30 grains of ferric ammonium citrates or from 6 to 8 grains of ferrous sulfate daily by mouth. As in the iron deficiency anemias of adults, the administration of hydrochloric acid is without benefit, food iron is relatively ineffective, and the efficacy of iron therapy may be interfered with by various factors, especially infection. In infants the choice of an iron preparation is usually limited by the fact that a soluble salt must be used. Unanimity is lacking as to the exact indications for iron therapy in infants, but it is generally agreed that when hemoglobin values less than 10 Gm. per hundred cubic centimeters of blood is consistently obtained, iron is indicated. Copper deficiency is more likely to play a

role in the anemias of infants than of adults, and in rare instances iron-refractory anemias may be benefited by the addition of a minute amount of copper, 1 mg. a day, to the iron prescription.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. HOWARD A. CARTER, Secretary.

HOLMSPRAY VAGINAL POWDER INSUFFLATOR ACCEPTABLE

Manufacturer: T. J. Holmes Company, Inc., Chartley, Mass.

The Holmspray Vaginal Powder Insufflator, No. 622, provides a means by which powders effective in the treatment of *Trichomonas vaginalis* and other organisms can be blown into the vaginal cavity. The device consists of a glass bottle to which is attached spray parts, a rubber shield and rubber bulb; the metal parts are chromium plated. The spray tube is interchangeable and is supplied in sizes for adults and infants.

The Council had the Holmspray Vaginal Powder Insufflator investigated and the report indicated that it insufflates the powder satisfactorily into the vagina. However, the rubber shield if placed close to the introitus interferes with the insufflation of the powder probably owing to the fact that it makes a closed circuit. It is, however, a satisfactory apparatus for blowing the powder into the vaginal lumen with a bivalve speculum in place.

The Council voted to accept the Holmspray Vaginal Insufflator, No. 622, for inclusion on its list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

CHORIONIC GONADOTROPIN (FOLLUTEIN)

The gonadotropic substance excreted in the urine of pregnant women is a water-soluble substance which has been prepared in a highly purified form. It is a glycoprotein containing about 12 per cent of galactose.

In rodents injection of pregnancy urine, or certain extracts thereof, induces follicular growth and corpus luteum formation. In man, the activity of pregnancy urine was first demonstrated in 1928. At that time, it was considered that the responsible substance was secreted by the anterior pituitary. At the time, the concept was advanced that this gonadotropin consisted of two hormones—prolan A, the follicle stimulating hormone, and prolan B, the luteinizing hormone—on the basis of its effect in the rat, mouse and rabbit. Further experimentation, however, has revealed that this substance is a single entity and not composed of two factors, that it arises from the placenta rather than from the pituitary, and that it differs fundamentally from the gonadotropins of the anterior lobe.

A significant physiologic difference between chorionic gonadotropin and preparations from the anterior pituitary is the inability of the former to stimulate to any appreciable extent the ovary of the monkey or the human being. Injection of chorionic gonadotropin into primates will not induce follicular growth or corpus luteum formation. On the contrary, reliable investigators have observed definite degenerative changes in the ovaries of women and monkeys treated with this substance. In addition, no clearcut endometrial responses have been observed in primates treated in this manner, which indicates conclusively the inability of this substance to stimulate the growth of normal ovarian structures.

The physiologic action of chorionic gonadotropin is not limited to the female, but it exerts a definite effect on the male reproductive organs. It is generally agreed that this substance acts on the interstitial cells of the testes, causing them to elaborate

Council on Foods

ACCEPTED FOODS

THE FOLLOWING ADDITIONAL FOODS HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO ACCEPTED FOODS.
FRANKLIN C. BING, Secretary.

FOODS FOR SPECIAL DIETETIC PURPOSES (See Accepted Foods, 1939, p. 315).

S & W Fine Foods, Inc., San Francisco.

NUTRADIENT BRAND WHOLE CARROTS, water packed, without added sugar or salt.
Analysis (submitted by manufacturer).—Moisture 87.0%, total solids 8.3%, ash 0.3%, fat (ether extract) 0.2%, protein (N \times 6.25) 0.5%, crude fiber 0.8%, carbohydrates other than crude fiber (by difference) 6.5%.
Calories.—0.30 per gram; 9 per ounce.

NUTRADIENT BRAND VALENCIA ORANGE JUICE UNSWEETENED.
Analysis (submitted by manufacturer).—Moisture 87.0%, total solids 13.0%, ash 0.4%, fat (ether extract) 0.1%, protein (N \times 6.25) 1.0%, reducing sugars as invert sugar 5.6%, sucrose (copper reduction method) 4.8%, crude fiber 0.1%, carbohydrates other than crude fiber (by difference) 11.4%, titratable acidity as citric acid 1.0%.
Calories.—0.51 per gram; 14 per ounce.

MILK AND MILK PRODUCTS OTHER THAN BUTTER (See Accepted Foods, 1939, p. 230).

Fort Dodge Creamery Company, Fort Dodge, Iowa.

GREEN GABLE BRAND EVAPORATED MILK.
Analysis (submitted by manufacturer).—Moisture 74.1%, total solids 25.9%, fat 7.9%, milk solids not fat 18.0%, ash 1.5%, protein (N \times 6.38) 6.7%, lactose 9.0%, carbohydrate (by difference) 9.8%.
Calories.—1.3 per gram; 36.9 per avoirdupois ounce.

The Borden Company, New York.

BORDEN'S EAGLE BRAND SWEETENED CONDENSED MILK.
Analysis (submitted by manufacturer).—Moisture 27.5%, total solids 72.5%, ash 1.9%, fat (ether extract) 9.1%, protein (N \times 6.38) 8.1%, sucrose 42.0%, milk solids 30.5%, non-fat milk solids 21.5%, carbohydrates (by difference) 54.4%.
Calories.—3.27 per gram; 93 per ounce.

PREPARATIONS USED IN THE FEEDING OF INFANTS (See Accepted Foods, 1939, p. 156).

Libby, McNeill & Libby, Chicago.

LIBBY'S BRAND HOMOGENIZED BABY FOODS FORMULATED COMBINATION No. 7, vegetable soup containing celery, potatoes, peas, carrots, tomato juice, soya bean flour and barley flour with a small amount of added sodium chloride.
Analysis (submitted by manufacturer).—Moisture 5.2%, total solids 14.8%, ash 1.3%, sodium chloride 0.2%, fat (ether extract) 0.02%, protein (N \times 6.25) 4.0%, crude fiber 0.4%, carbohydrates other than crude fiber (by difference) 9.1%, calcium (Ca) 0.032%, phosphorus (P) 0.075%, iron (Fe) 0.0014%, copper (Cu) 0.00028%.
Report of titration test (1939) indicates that this product contains 0.023 mg. of ascorbic acid per gram, 0.64 per ounce. Protocols of biologic assay (1939) indicate that this product contains approximately 22.5 U. S. P. units of vitamin A per gram, 639 per ounce; and 0.33 Sherman-Rat growth tests have demonstrated the presence of small amounts of vitamin B₁ (thiamine).
Calories.—0.53 per gram; 15.1 per ounce.

SUGARS AND SYRUPS (See Accepted Foods, 1939, p. 327).

Penick & Ford, Ltd., Incorporated, New York.

PENICK BRAND IMITATION MAPLE SYRUP, a mixture of corn syrup and sugar syrup with imitation maple flavor.
Analysis (submitted by manufacturer).—Moisture 25.3%, total solids 74.7%, ash 0.2%, nitrogen 0.003%, sucrose 26.0%, reducing sugars as dextrose (before inversion) 28.8%, carbohydrates other than crude fiber (by difference) 74.5%.
Calories.—2.98 per gram; 85 per ounce.

The Pure-Grape Sugar Manufacturing Co., Ltd., Athens, Greece, product distributed in the United States by Aegean Trading Company, New York.

GRAPE SUGAR (DEXTRASE), a carbohydrate for use as a sweetening in the preparation of other foods, made from fresh grapes or raisins.
Analysis (submitted by manufacturer).—Moisture 10.1%; ash 0.4%; sugar as glucose (Munson-Walker) 89.7%; polarization 10% solution at 25 C., 9.3 degrees angular; specific rotation at 25 C., 46.5 degrees; soluble starch, chlorides and sulfates, none; arsenic and heavy metals, none; sulfate, trace.
Calories.—About 3.6 per gram; 102 per ounce, depending on the amount of water present.

the androgenic hormone of the testis, which in turn induces growth of the accessory sex organs. This substance is effective in male monkeys and human beings. Among the reactions induced in the monkey is the descent of the testes in the prepubertal animal. In some animals there may be some increase in the size of the seminiferous tubules, but there is little if any effect on the germinal epithelium. Spermatogenesis is, however, maintained by chorionic gonadotropin in recently hypophysectomized rats, but it is not restored after atrophy or induced in normal immature rats.

The therapeutic application of chorionic gonadotropin has covered a wide range of conditions. Many of the trials have been on an unsound or improperly conceived basis. Its use in the treatment of ovarian disturbance, for example, has no scientific rationale at the present time, although when it was first introduced for the treatment of these dysfunctions the physiologic basis for therapy appeared excellent.

CHORIONIC GONADOTROPIN (FOLLUTEIN).—

The water-soluble gonadotropic substance obtained from the urine of pregnant women. This preparation is standardized in international units. One international unit equals 0.1 milligram of a standardized powder (see Council Report, J. A. M. A. 113:2418 [Dec. 30] 1939).

Actions and Uses.—Its use is recommended in the treatment of cryptorchidism where there are no anatomic lesions causing obstruction of the testicular descent. The diagnosis of an anatomic lesion can often be made in this manner where this therapy fails. Thus the surgical treatment of cryptorchidism may be instituted at an early age when it is found that hormone therapy cannot induce descent. Injections should not be prolonged after six to eight weeks if no descent is obtained, since excessive therapy may result in undesirable responses of precocious puberty and possibly other harmful reactions.

The diagnosis of cryptorchidism should not include those cases which have been termed pseudocryptorchids, in which the testes are maintained in the inguinal canal as the result of reflex muscular spasm. It will be found that the testes return to the normal scrotal position on gentle handling and warmth.

Chorionic gonadotropin therapy is still considered experimental because of the lack of sufficient published data. This treatment of hypogonadism in the adult is considered experimental at the present time. Its value in the treatment of uterine bleeding of functional nature is also as yet unproved, although numerous reports on this therapy have appeared in scientific publications. There is less enthusiasm for this therapy at the present time than there was several years ago. Considerable disagreement exists among the various investigators regarding the type of bleeding benefited by chorionic gonadotropin therapy.

Dosage.—The usual dose in treating cryptorchidism is from 200 to 500 international units two to three times a week. Long-continued injections may be dangerous and treatment should not be maintained after eight weeks in the absence of progressive descent. Therapy should be discontinued on the development of signs of precocious maturity.

Follutein-Squibb.—A nonproprietary brand of chorionic gonadotropin (follutein)-N. N. R. Both follutein and chorionic gonadotropin are nonproprietary terms.

Manufactured by E. R. Squibb & Sons, New Brunswick, N. J., by license under U. S. patent 1,910,298. E. R. Squibb & Sons agree to withdraw their rights to Follutein as a proprietary name.

1'sals Follutein-Squibb, 500 International Units: A glycerin solution of chorionic gonadotropin (follutein)-N. N. R. which, when diluted with the 4 cc. of sterile distilled water in the accompanying vial, provides a solution having a potency of 100 international units per cubic centimeter.

1'sals Follutein-Squibb, 1,000 International Units: A glycerin solution of chorionic gonadotropin (follutein)-N. N. R. which, when diluted with the 8 cc. of sterile distilled water in the accompanying vial, provides a solution having a potency of 100 international units per cubic centimeter.

1'sals Follutein-Squibb, 5,000 International Units: A glycerin solution of chorionic gonadotropin (follutein)-N. N. R. which, when diluted with the 40 cc. of sterile distilled water in the accompanying vial, provides a solution having a potency of 100 international units per cubic centimeter. Follutein is prepared from the urine of normal pregnant women by precipitating the active principle from the urine by addition of ethyl alcohol to give a concentration of more than 85 per cent alcohol, extracting the hormone from the precipitate with dilute alkaline water, and then salting out the active principle from this solution with ammonium sulfate. Further purification is made by fractionating in 50 per cent alcohol at the isoelectric point of impurities, which are removed by centrifuging. The active principle is obtained by raising the alcohol concentration to 85 per cent. The precipitate is removed by filtration and dried. This precipitate is dissolved in 90 per cent glycerin, filtered. The concentrated solution is then tested for sterility and for its activity. The final material is assayed biologically on infantile rats and compared in this procedure to the International Standard powder. The product is then diluted until its biologic activity is equal to that of the international standard.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 8, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

SUPREME COURT DECIDES FOR TRIAL ON INDICTMENT OF AMERICAN MEDICAL ASSOCIATION AND OTHERS UNDER SHERMAN ANTI-TRUST ACT

On Dec. 20, 1938, an indictment was filed in the District Court of the United States for the District of Columbia charging the American Medical Association, Medical Society of the District of Columbia, Harris County (Texas) Medical Society, Washington Academy of Surgery and twenty-one individual defendants with conspiracy to violate section 3 of the Sherman Anti-Trust Act. The defendants filed a demurrer to the indictment. This means that the defendants contended that, even assuming everything alleged in the indictment to be true, there was no violation of the law as charged. Of course, on the issue thus formed the courts were bound to take as true, whether or not it was in fact true, each and every

allegation of the indictment. The District Court agreed with the defendants' contention and on July 26, 1939, sustained the demurrer and dismissed the indictment.¹

From that order Thurman Arnold, as Assistant Attorney General, prosecuted an appeal to the Court of Appeals of the District of Columbia. While the case was pending in the Court of Appeals, and before a decision there, the government filed a petition in the Supreme Court of the United States for a writ of certiorari to remove the case from the Court of Appeals to the Supreme Court of the United States. The defendants did not oppose this petition, but the Supreme Court denied it,² probably on the theory that the issues presented were raised by demurrer and that the case had not been tried and the real facts did not appear in the record.

Thereafter the Court of Appeals proceeded to consider the case and on March 4, 1940, it reversed the order of the District Court and remanded the case to the District Court for trial.³ The Court of Appeals in its opinion said:

Defendants say that what they are charged with doing amounts to no more than the regulation of membership in the society and the selection of the persons with whom they wish to associate; that under their rules disobedient members may lawfully be disciplined, and that discipline does not amount to unreasonable restraint. This may very well be true, and in considering the contention we are not unmindful of the importance of rules of conduct in medical practice, rules which can best be made by the profession itself. We recognize, in common with an almost universal public opinion, that in the last half century, through this means, the quack and the charlatan have been largely deprived of the opportunity of preying on the unfortunate and the credulous. We also recognize that in personal conduct and in professional skill the rules and canons, so established, have aided in raising the standards of medical practice to the advantage of the whole country. We are mindful of a generally known fact that under these rules and standards there has developed an esprit de corps largely as a result of which the members of the profession contribute a considerable portion of their time to the relief of the unfortunate and the destitute. All of which may well be acknowledged to their credit.

The court went on to say that, notwithstanding the foregoing, the defendants ought not restrain trade and that it thought under the allegations of the indictment the true facts should be brought out by a trial of the case, and that on a trial, if in fact restraint was shown, it would not necessarily violate the law if such a restraint was reasonable as a regulation of professional practice and that whether or not such restraint was reasonable as a regulation of professional practice must be shown in evidence on the trial of the case.

On April 29, 1940, the defendants filed in the Supreme Court of the United States their petition for a writ of certiorari to review the decision of the said Court of Appeals. The government opposed this petition and argued that the Supreme Court of the United States ought not decide the issues in this case on a

1. 28 Fed. Sup. 752.

2. 84 L. Ed. (Adv.) 96.

3. 110 Fed. (2d) 703.

demurrer to the indictment but ought to wait until the case had been tried and the real facts appear of record.

The Supreme Court apparently agreed with the government's contention in this regard, because on June 3 it denied the defendants' petition for a writ of certiorari. The Supreme Court of the United States did not decide the legal issues or any of them against the defendants but merely refused to review the decision of the Court of Appeals at this time and in effect said that the defendants would have to stand trial before it would pass on the issues.

The American Medical Association, its officers and the other defendants in this case feel certain that they have not violated the Sherman Anti-Trust Act and feel certain that they will be vindicated on a trial of this case, but they regret the expense that will necessarily be incurred in such a trial.

HOSPITAL CONSTRUCTION BILL PASSES SENATE

Without a dissenting voice the Wagner-George bill for the construction of hospital facilities, health, diagnostic and treatment centers, and facilities relating thereto passed the Senate, May 30. Two amendments to the bill, as reported by the Committee on Education and Labor, were proposed from the floor of the Senate; both were unanimously adopted. Senator Barbour of New Jersey sponsored an amendment to assure that facilities to be constructed under the bill will be made available without discrimination on account of race, creed or color. This amendment provides that, where separate health facilities are required by law for separate population groups, equitable provisions on the basis of need will be made for facilities and services of like quality for each such group. The other amendment, sponsored by Senator Murray of Montana and adopted without opposition, provides that the eight appointed members of the National Advisory Hospital Council shall be selected not only from leading medical or scientific authorities but also from osteopathic authorities who are outstanding in matters pertaining to hospitals and other public services. No doubt Surgeon General Parran, who may have the responsibility of nomination of members of the proposed hospital council, will have some difficulty in finding an osteopath who is "outstanding in matters pertaining to hospitals and other public services."

The bill now goes to the House of Representatives, where it will receive consideration by the Committee on Interstate and Foreign Commerce. The bill should be modified so that the definition of the term "hospital" covers institutions primarily for the care of the sick rather than health, diagnostic and treatment centers. It should be amended to eliminate the meaningless reference to "outstanding" osteopathic authorities. It should be amended to give the Advisory Council a positive voice in the construction program not only for the first

year but also during the last five of the six years that the bill will be in operation. It should be amended to provide for the selection of the members of this council by the Chief Executive.

This proposal is an experimental venture; it would be most unfortunate if the inclusion of unwise provisions prevented a sound appraisal of its fundamental merits.

A NEW MANUAL FOR HEALTH EXAMINATIONS

A committee appointed by the Board of Trustees to cooperate with the Bureau of Health Education in revising the Manual for Periodic Health Examinations of Apparently Healthy Persons has completed its work and has issued a revision under the title Periodic Health Examination: A Manual for Physicians.¹ The new manual represents a complete revision of the material which was first issued in 1925 and superficially revised in 1932. The committee endeavored to consider some of the reasons why the periodic health examination of apparently normal persons had not been more widely accepted as a habitual practice even among intelligent and well educated persons. There were two reasons, the committee concluded, for the situation: (1) excessive and unjustifiable claims for what periodic health examinations can be expected to accomplish and (2) a feeling on the part of the public, whether justified or not, that periodic health examinations, though theoretically desirable, are excessively expensive.

In the preface to the 1940 edition, the committee takes cognizance of these barriers to progress and indicates definite limitations in the claims to be made on behalf of periodic health examinations: "No promise or prophecy of good health in the future should be offered. The only honest or valid claims are that it serves to measure the present health status of the individual, subject to the qualification that obscure or insidious disease may not always be discoverable by methods at present available. Further, the examination discloses habits of living and environmental factors which may be unhealthful but susceptible of correction. Finally, of course, it gives opportunity for treatment of early or preclinical stages of disease." The committee also, for the first time, advances a new conception of the periodic health examination, consisting of a basic examination of the patient including health, history, medical examination and only chemical and microscopic urinalysis, hemoglobin determination and stained blood smear and blood test for syphilis as routine laboratory procedures. The committee suggests that "additional laboratory procedures such as gastric analysis, blood cell and differential counts, basal metabolic rate determination, blood chemistry, x-ray examinations, functional tests and consultations with specialists be considered as

1. Periodic Health Examination: A Manual for Physicians, Bureau of Health Education, Chicago, American Medical Association. Single copies 25 cents.

accessory methods to be used only where the basic examination indicates their necessity" and that "when- ever the patient is unable to afford the accessory examinations and these are not available at public expense, the physician should nevertheless proceed to advise the patient to the best of his ability under the circumstances."

In most respects there can be little disagreement with the recommendations made, although not all will concur in the statement that the taking and recording of blood pressure measurements constitute a portion of the physical examination record which can be satisfactorily obtained by a "lay assistant, office clerk or nurse with accuracy."

Complete instructions are included in the manual for all the necessary physical examinations and many suggestions are given for hygienic advice to the patient. New features not found in previous editions of the manual include a suggested order of examination which correlates items on the physical examination blank with corresponding paragraphs in the manual of instructions. Except for the introduction, all paragraphs in the manual are numbered for ready reference to this suggested order of examination. Diagrams for posture diagnosis are included, the principal industrial hazards are enumerated, chief diseases and defects needing treatment are tabulated and there is a fairly complete discussion of general principles in prescribing diets, including some sample menus with computation of protein, fat and carbohydrate contents, unit values of vitamins A, B₁, C and G, and caloric values. There is a table of 100 calory portions of common foodstuffs and many other practical suggestions useful to the physician. The manual is intensively indexed.

There has been a coincidental revision of the record blank for periodic health examination necessitated by the fundamental changes in the manual.

The revised concept of a basic and relatively inexpensive health examination, plus the use of more extensive laboratory investigations only when specially indicated, should make a new appeal both to physicians and to the public. Greater growth in the popularity of the periodic health examination is desirable, since it has a definite if limited place in any program of individual health maintenance. Moreover, it opens wide possibilities to the physician as a health counselor and adviser.

Appreciation is due the committee² and the individual and organizational consultants³ who cooperated with the Bureau of Health Education in the preparation of the manual.

2. The members of the committee are Drs. Fremont A. Chandler, George H. Coleman, W. C. Danforth, Haven Emerson, Parker Heath, Leland S. McKittrick, Gordon B. New, William A. O'Brien, C. D. Selby, Paul D. White, and W. W. Bauer, chairman.

3. Walter C. Alvarez, M.D., Ruth Cowan Clouse, Ph.D., Robert L. Dickinson, M.D., Harold S. Diehl, M.D., Otto H. Foerster, M.D., Donald A. Laird, Ph.D., R. G. Leland, M.D., Lon W. Morrey, D.D.S., Carl M. Peterson, M.D., Paul A. Teschner, M.D., S. Bernard Wortis, M.D., American Heart Association, American Society for the Control of Cancer, American Society for the Hard of Hearing, National Committee for Mental Hygiene, National Society for the Prevention of Blindness and National Tuberculosis Association.

TULAREMIA

Since Francis¹ in 1919 recognized the identity of "deer fly fever" with the "plaguelike" disease of rodents which had been described by McCoy² several years earlier, the presence of human cases of this disease has been disclosed in forty-eight states and in the District of Columbia, as well as in a number of foreign countries. The symptoms, diagnosis and pathology of this disease, named tularemia by Francis and often called "rabbit fever," were extensively described a number of years ago in *THE JOURNAL*.³ Now attention is called to the increasing number of human cases and deaths from tularemia. A recent report⁴ devoted to a discussion of the sources, symptoms and prevention of tularemia states that there were 2,088 cases and 139 deaths from this disease in the United States alone in 1938. Moreover, complete returns will probably show that the death toll of the disease in 1938 was exceeded in 1939, since in the latter year 2,200 cases were reported.

While it is true that more than 90 per cent of the human cases of tularemia are due to contact with infected wild rabbits, it may also be noted that at the present time twenty-four types of American wild life have been implicated in transmitting the causative agent, *Bacterium tularense*, to man. Infections have resulted, for instance, from the bite of insects, such as the wood tick, dog tick and horsefly, as well as from the bites of animals such as the skunk, raccoon, coyote, tree squirrel, ground squirrel, opossum, dog and lamb. Since the vast majority of human cases result from contact with wild rabbits, however, those persons who are particularly exposed to infection are market men, hunters, housewives and others who handle and dress these animals. In these cases infection may be caused by pricking the skin with a piece of broken bone, by cutting with the skinning knife or by allowing infected body fluid, such as blood, to get into an abrasion of the skin. Even the pelts of infected animals may convey the infection.

Most patients recover from tularemia without permanent ill effects and thereafter enjoy immunity from the disease. Nevertheless about 5 per cent of the patients die, often after developing pneumonia. Despite reports in the literature of the favorable therapeutic effect of antiserum, it is now reported that there is no specific preventive or curative treatment for the disease.⁴ Those who are exposed to tularemia must take especial precautions to prevent infection. The use of rubber gloves by those who handle animals which may be infected has been suggested. Extreme care should be taken to avoid cutting or pricking the hands, and any possibly infected material which gets on the hands should be thoroughly washed off with soap and water and the

1. Francis, Edward: *Deer Fly Fever, or Pahvant Valley Plague*. *Pub. Health Rep.* 34: 2061 (Sept. 12) 1919; *The Occurrence of Tularemia in Nature as a Disease of Man*, *ibid.* 36: 1731 (July 29) 1921.

2. McCoy, G. W.: *Bull.* 43, U. S. P. H. & M. H. S., April 1911.

3. Francis, Edward: *Symptoms, Diagnosis and Pathology of Tularemia*. *J. A. M. A.* 91: 1155 (Oct. 20) 1928.

4. Tularemia (Rabbit Fever), *Pub. Health Rep.* 55: 667 (April 15) 1940.

hands should be disinfected. Since the disease may also be contracted by the consumption of infected meat that is insufficiently cooked, it is advisable to cook thoroughly any possibly infected meat. The need for stressing these preventive measures is obvious, since the reported increase in the number of human cases and deaths from tularemia indicates that many people who are exposed to infection are unaware of the danger.

Current Comment

THE NEW YORK TIMES SINGS A NEW TUNE

In the *New York Times* for Sunday, June 2, under the editorial column called Topics of the Times, appears the following statement: "Hitherto we have been stressing the health of the underprivileged. Now is the time to recall that health conditions in the lower one third of the nation have made notable gains in our generation. Our discontent has been impatience with what we considered insufficient progress. The fact of progress no one could specifically deny. The health of the Negro people in the crowded districts lags far behind conditions among the white population. But the health of the Negro people today is far better than it was a generation ago. Today, and for the duration of the emergency, it is the improvement already made and not the gap still to be covered that should be chiefly stressed." Apparently the *Times* has discovered that the welfare of a part of the nation is dependent on the welfare of the whole, and that the security of one third is dependent on the security of three thirds. Perhaps the new point of view will lead its editors to the reflection that progress in the care of the sick is not to be made by breaking down confidence of the people in the medical profession, which is the only body in the country legally, scientifically and by experience qualified to care for the sick.

"IN DEFENSE OF THE INDIVIDUAL"

In the *Atlantic Monthly* for June, Mr. Albert Jay Nock presents a stimulating essay with the title of this comment. In general his essay is an attack on collectivism and a review of the insidious manner of its approach to the American way of living. Mr. Nock particularly recommends "Democracy vs. Socialism," a work by Max Hirsch, which he says presents the "complete case against every known form and shade of State collectivism, from Marxism and Fascism down to the New Deal, leaving not a shred of respectability, or even of plausibility, to the claims of many of them." He continues, "Out of the mouths of the collectivists themselves it shows that the State does not and cannot administer a collectivist economy without bringing on consequences so calamitous as to end in a complete rebarbarization of society." The occurrences in recent years in Russia and in Germany should be sufficient to prove the truth of this latter statement. Mr. Nock points out that state collectivism made its way in England step by step, where it was to be brought in by "the progressive legalization of one bit of its pro-

gram after another, thus steadily widening the scope of State control." Indeed he feels that state collectivism is as fully dominant in England as it is in the systems which frankly call themselves totalitarian and that its dictates are enforced by the same means as those systems employ. The United States has approached state collectivism step by step. Mr. Nock feels that the character of the people of the United States is such as to be more easy of approach to such a system than other countries because it has been our tendency always to go to the state with any difficulties which would take time or be bothersome for us to settle for ourselves. He continues: "Some people are out of work—let the State make jobs for them. Some are hungry—let the State feed them. Some monopolies are oppressive—let the State break them up. There is a shortage of houses—let the State build more. Some have too much money—let the State take it away from them and redistribute it." To this we might add "There are some inadequacies and inefficiencies in parts of medical service—let the State take over all of medical service." Particularly hazardous is the concept that the difficulty with various forms of collectivism is not in collectivism itself but in the method of its administration. Thus one gets the notion that collectivism might work in Russia or in Germany if one could replace the present leaders with others, that collectivism might work better in this country under the administration of one party than it does under another. What Americans must remember is the basic thought that democracy depends on the principle of individual responsibility, and it is the breakdown of this principle that destroys democracy!

DIGITALIS FOR OBESITY

Too much publicity has apparently been given to the reports of a method of weight reduction which involves administration of digitalis for suppressing the appetite. The underlying thesis that the food intake determines the weight is, of course, correct; definite suppression of appetite will ordinarily be followed by loss of weight. Moreover the use of ipecac and similar drugs may result in a loss of appetite even before nausea and vomiting are manifested. Whether or not digitalis can produce a loss of appetite without harmful effects is more debatable. The work of Hatcher and Weiss in particular has shown that the nausea produced by digitalis is a reflex the sensory organ for which does not appear to be located in the heart. Thus the type of nausea which digitalis produces is at least partly due to factors other than gastric irritation. Indeed, nausea and vomiting are toxic symptoms of digitalis and constitute a warning to decrease or stop the administration of the drug. The observations reported by Bram¹ on this method of reducing body weight have attracted the attention of some writers for the public. Confirmatory evidence for his views is lacking. The method cannot be generally recommended unless its efficacy and safety have been thoroughly demonstrated by carefully controlled observations. At present the use of this technic is clearly in the experimental stage and uncontrolled use should be discouraged.

1. Bram, Israel: *M. Rec.* 151:131 (Feb. 21) 1940.

ORGANIZATION SECTION

OFFICIAL NOTES

ADDRESSES BY DR. VAN ETEN

- June 10 Health Center, Washington Heights, N. Y.
- June 10 House of Delegates, American Medical Association, The Waldorf-Astoria, New York.
- June 11 President's address, American Medical Association, The Waldorf-Astoria, New York.
- June 11 Broadcast 5:15 p. m., National Broadcasting Station, New York.
- June 12 Women's Auxiliary luncheon, Hotel Pennsylvania, New York.
- June 12 National Board of Medical Examiners' dinner, The Waldorf-Astoria.
- June 12 Catholic Physicians Guild dinner, Hotel Biltmore, New York.

- June 13 Broadcast "Adventures in Science," WABC, New York.
- June 19 Canadian Medical Association, Toronto, Canada.
- June 25 Health Officers' Conference, Saratoga, N. Y.

THE NEW YORK SESSION

Open House at Merck & Co.

Physicians attending the annual session of the American Medical Association in New York are cordially invited to attend the Merck "open house" at Rahway, N. J., Friday afternoon, June 14, from 1:30 to 5:30 o'clock. Transportation will be provided. For additional details and cards of admission, physicians are asked to call at the Merck Exhibit, booth 280, Grand Central Palace.

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—S. 3230, the Wagner-George Hospital Construction Act of 1940, has passed the Senate and, in the House, has been referred to the Committee on Interstate and Foreign Commerce. Senator Murray of Montana sponsored an amendment to the bill from the floor of the Senate proposing osteopathic representation on the National Advisory Hospital Council. The amendment was unanimously adopted. S. J. Res. 256 has passed the Senate, designating June 22 in each year as Doctor's Day. In the House this joint resolution has been referred to the Committee on the Judiciary. S. 1964 has been reported to the House, proposing to authorize national banking associations to contribute to community funds or to charitable, philanthropic or benevolent instrumentalities conducive to public welfare. S. 1460 has passed the Senate, providing uniform reciprocal hospitalization in any Army or Navy Hospital for retired personnel of the Army, Navy, Marine Corps and Coast Guard and Fleet Naval and Fleet Marine Corps. S. 3131 has passed the Senate, extending the benefits of the United States Employees' Compensation Act to members of the Officers' Reserve Corps and of the Enlisted Reserve Corps of the Army who were physically injured in line of duty while performing active duty or engaged in authorized training between dates of Feb. 28, 1925, and July 15, 1939, both inclusive. S. 3266 has passed the Senate, providing pensions, compensation, retirement pay and hospital benefits for certain Air Corps Reserve officers who were disabled while on active duty with the Regular Army. S. 3607, authorizing research by the United States Public Health Service with respect to the cause, diagnosis and treatment of dental diseases, was reached on the

Senate calendar May 28, but consideration of the bill was prevented by an objection lodged by Senator Gerry of Rhode Island. S. 3617 has passed the Senate, granting the consent and approval of Congress to an interstate compact relating to control and reduction of pollution in the Ohio River drainage basin. H. R. 9236 has passed the House and Senate, providing an additional appropriation of \$75,000 for the preparation of "talking books" for the blind.

Bills Introduced.—S. 3960, introduced by Senator Sheppard of Texas, proposes that the present grade of captain, Medical Administrative Corps, United States Army Reserve, be advanced to colonel, Medical Administrative Corps, United States Army Reserve. H. R. 9861, introduced by Representative Fish of New York, proposes to amend the act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever" by including therein the name of Dr. J. Wilson Poucher. H. R. 9889, introduced by Representative Whelchel of Georgia, proposes a federal appropriation of \$100,000 to erect a hospital at Jefferson, Ga., as a memorial to Dr. Crawford W. Long, "who was the first physician to perform an operation by use of ether, and for carrying on scientific research to further the study of surgery." The hospital, it is proposed, will be named "Crawford W. Long Memorial Hospital."

DISTRICT OF COLUMBIA

Change in Status.—S. 2013 has passed the Senate, proposing to amend the Code of the District of Columbia to provide for the organization and regulation of cooperative associations.

WOMAN'S AUXILIARY

Arkansas

The auxiliary to the Pulaski County Medical Society held a recent meeting in Little Rock with forty-one members attending. Miss Erle Chambers, executive secretary of the Arkansas Tuberculosis Association, spoke on the "Program of the Association in Arkansas."

Mrs. W. R. Brooksher Jr. was named general chairman of the Arrangements Committee of Women's Activities for the annual meeting of the auxiliary to the Arkansas Medical Society in Fort Smith, April 15-17. Members of the auxiliary to the Sebastian County Medical Society were hostesses to the ladies who attended the annual meeting.

Michigan

The auxiliary to the Bay County Medical Society met in Bay City recently with thirty-seven members in attendance. Miss Libby Kessler reviewed "Dr. Hudson's Secret Journal."

At a recent meeting of the auxiliary to the Saginaw County Medical Society members voted to contribute to the purchase of an iron lung for the hospital and to send *Hygia* to twenty rural schools of the county.

The auxiliary to the Kalamazoo County Medical Society met at the Kalamazoo Academy of Medicine recently. Dr. Paul W. Harrison spoke on his experiences in Arabia.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

State Society Condemns Patents for Profit.—The Medical Association of the State of Alabama adopted a resolution, April 18, in which it condemns as unethical the patenting of drugs or medical appliances for profit whether the patent is held by a physician or is transferred by him to some university or medical research foundation. This action, according to the resolution, deprives the needy sick of the benefits of many new medical discoveries through the acts of medical men. Introduced by Dr. Marye Y. Dabney, Birmingham, the resolution points out that there is a growing tendency to patent drugs in the name of universities and foundations in connection with universities. The effect of the patents is to increase the price of the drugs because of the royalties imposed by the foundations, thus affecting the needy public who are prevented from buying them on account of the necessarily high prices asked.

CALIFORNIA

Society News.—The Los Angeles Society of Neurology and Psychiatry was addressed, April 17, among others, by Drs. Cullen Ward Irish and Karl O. Von Hagen on "Douglas's 'The Physical Mechanism of the Human Mind.'"—At a meeting of the Los Angeles Society of Ophthalmology and Otolaryngology, April 22, observing the thirty-fifth anniversary of its founding, the speakers included Drs. Etta C. Jeancon on "Cataract Operation in Tuberculosis"; Clinton A. Wilson, "Unexplained Optic Neuritis"; and Helen E. Preston, "Congenital Iris Atrophy with Anterior Synechiae." A dinner was given to honor founders and past presidents of the society.—At the first and organization meeting of the Los Angeles County Physicians' Aid Association, April 3, the following officers were chosen: Drs. Elizabeth M. Hohl, president; Herbert O. Bames, vice president; Olga McNeile, secretary; and Alfred R. Robbins, treasurer. Its official address will be 671 North Mariposa Avenue, Los Angeles.

FLORIDA

New Society of Specialists.—The Florida Society of Ophthalmology and Otolaryngology was formed at a meeting in Tampa, April 29. Officers are Drs. Hermon Marshall Taylor, Jacksonville, president; Sherman B. Forbes, Tampa, vice president; and Carl E. Dunaway, Miami, secretary. During the annual meeting of the state medical association in 1939, ophthalmologists and otolaryngologists met informally with a view to a permanent organization, but final action was delayed until this year.

Short Graduate Course.—The Florida Medical Association will hold its annual graduate short course at the George Washington Hotel, Jacksonville, June 24-29. The instructors will be:

Dr. Raymond W. McNealy, associate professor of surgery, Northwestern University Medical School, Chicago.

Dr. William T. Pride, professor of obstetrics, University of Tennessee College of Medicine, Memphis.

Dr. Willis Campbell, professor of orthopedic surgery, University of Tennessee College of Medicine.

Dr. Henry M. Thomas Jr., associate professor of medicine, Johns Hopkins University School of Medicine, Baltimore.

Dr. Daniel C. Darrow, associate professor of pediatrics, Yale University School of Medicine, New Haven, Conn.

Dr. Stuart N. Michaux, professor of gynecology, Medical College of Virginia, Richmond.

Dr. Paul Padgett, Baltimore, will present the course in venereal diseases, which has been substituted for neuropsychiatry this year.

IDAHO

Society News.—The Pocatello Medical Society was addressed in Pocatello, April 4, by Drs. Richard P. Howard and Abram M. Newton, Pocatello, who presented a symposium on the medical and surgical treatment of peptic ulcer. At an earlier meeting of the society a symposium on sulfanilamide and related drugs, their indications, contraindications, dosage and mode of action was presented by Drs. Wilfred L. Olsen, Ben C. Eisenberg and Eugene V. Simison.

Professional Groups Protest Regimentation.—Physicians, dentists and pharmacists of south central Idaho recently took steps to form a committee that will serve as a working unit against measures which might bring governmental control of the professions, newspapers reported. The action was taken at a dinner meeting in Twin Falls. The speakers included Dr. Harry E. Rhodehamel, Spokane, Wash., northwestern representative of the National Physicians' Committee for Extension of Medical Service; Donald S. Whitehead, lieutenant-governor of Idaho and a pharmacist, and F. A. Kallusky, D.D.S., Buhl, president of the South Central Dental Society. Dr. Harry E. Lamb, Twin Falls, president of the Southside Medical Society, opened the meeting and J. J. Lynch, secretary of the state pharmaceutical group, was toastmaster at the dinner.

ILLINOIS

State Medical Election.—Dr. Charles H. Plifer, Chicago, was chosen president-elect of the Illinois State Medical Society at its annual meeting in Peoria, May 23, and Dr. James S. Templeton, Pinckneyville, was installed as president. Other officers are Drs. Arthur Sprenger, Peoria, and James H. Finch, Champaign, vice presidents; A. J. Markley, Belvidere, treasurer, and Harold M. Camp, Monmouth, secretary. The 1941 meeting will be held in Chicago.

Chicago

The Luckhardt Lecture.—The seventh annual Arno B. Luckhardt Lecture of Delta chapter of Phi Beta Pi medical schools of the University of Chicago was delivered by Dr. Andrew C. Ivy, Nathan Smith Davis professor of physiology and professor of pharmacology, Northwestern University Medical School, April 19. His subject was "The Gastro-Intestinal Hormones: An Illustration of the Influence of a Great Teacher."

Society News.—The Chicago Society of Allergy devoted its meeting, May 20, to a symposium on intrinsic asthma; the speakers were Drs. Edward G. Tatge, Evanston, Ill., Clarence Bernstein Jr., Morris A. Kaplan and Morris J. Hoffman.—The Chicago Society of Internal Medicine was addressed, May 27, among others, by Fred S. Grodins, Stafford L. Osborne and Dr. Andrew C. Ivy on "The Effect of Bile Salts on Hepatic Blood Flow." Dr. James G. Carr gave the presidential address on "The Physician and the Internist."—Drs. Hollis E. Potter, Chicago, and Bruce H. Douglas, Detroit, discussed "The Miniature X-Ray Film" before the Chicago Tuberculosis Society, May 16.

Dr. Harvey to Become Professor Emeritus.—Dr. Basil C. H. Harvey, professor of anatomy and dean of students, including medical students, Division of Biological Sciences, University of Chicago, will become professor emeritus September 1. Born in Watford, Ont., Canada, in 1875, Dr. Harvey graduated at the University of Toronto Faculty of Medicine in 1898. He practiced medicine in Watford until 1901, when he joined the faculty of the University of Chicago as assistant in anatomy, and was made full professor in 1917. In 1923 he was named dean of medical students and in 1931 his deanship was extended to include all students in the newly created Division of Biological Sciences. Dr. Harvey was a major in the World War.

Lectures on Biochemistry.—A group of lectures on biochemistry divided into three series has been arranged by the department of biochemistry, University of Chicago, as a special feature of the first term of the summer quarter. The first group will be delivered June 25-27 by Dr. Cyril N. H. Long, Sterling professor of physiologic chemistry, Yale University School of Medicine, New Haven, Conn., on "Recent Studies on the Pancreas-Suprarenal-Pituitary Relations in Diabetes Mellitus." Edward A. Doisy, Ph.D., professor and director of the department of biochemistry, St. Louis University School of Medicine, St. Louis, will give the second series, July 9-10, on "The Vitamin K Problem." The last group will be on "Recent Advances in Enzyme Chemistry" with James Batcheller Sumner, Ph.D., professor of biochemistry, Cornell University Medical College, New York, as the speaker, July 15-17. Tickets may be obtained by writing to the director of the summer quarter, University of Chicago.

INDIANA

Society News.—The Greene County Medical Society was addressed in Linton, May 16, by Dr. Harold J. Pierce, Terre Haute, on "General Considerations of Carcinoma."—Dr. Otto L. Siewert, Logansport, discussed "The Eye in General Practice" before the Carroll County Medical Society in Camden, May 10.—Dr. William M. Doughty, Cincinnati, addressed the

Dearborn-Ohio County Medical Society in Lawrenceburg, May 2, on "Fractures of the Jaw."—The Parke-Vermillion Counties Medical Society was addressed in Clinton, May 15, by Dr. Alexander W. Cavins, Terre Haute, on "Myomas."—Dr. Ernest R. Carlo, Fort Wayne, discussed "Heart Disease in Children" before the Huntington County Medical Society, Huntington, May 7.

Serum Center to be Established.—The Indiana University School of Medicine, Indianapolis, has accepted funds from the Variety Club of Indianapolis to establish a convalescent serum center on the campus for the use of the medical center and physicians throughout the state. According to the state medical journal, the serum center will be the first to be established in Indiana on any extensive scale. At present Indiana physicians needing serums must send outside the state, the closest station being Chicago. Dr. Matthew Winters, professor and head of the department of pediatrics, has been appointed chairman of a committee to supervise the establishment of the center.

IOWA

Twin Lakes District Meeting.—The annual meeting of the Twin Lakes District Medical Society will be held at Rockwell City, June 20. The program has been designed for the general practitioner and speakers will include:

Dr. Nelson W. Barker, associate professor of medicine, University of Minnesota Graduate School, Minneapolis-Rochester, Minn.

Dr. Frederic W. Schlutz, chairman of the department of pediatrics, School of Medicine of the Division of Biological Sciences, University of Chicago.

Dr. Edward L. Cornell, assistant professor of obstetrics, Northwestern University Medical School, Chicago.

Dr. John S. Coulter, associate professor of physical therapy at Northwestern.

Dr. Frank R. Peterson, professor and head of the department of general surgery, State University of Iowa College of Medicine, Iowa City.

Dr. Ira H. Lockwood, Kansas City, will discuss "Medical Economics and the National Physicians Committee."

MAINE

Society News.—Dr. Herbert T. Kelly, Philadelphia, discussed "Important Phases of Nutrition and Vitamin Deficiency Disorders" before the Cumberland County Medical Society in Portland, April 25.—Dr. James M. Parker, Portland, addressed the Portland Medical Club, April 2, on "The Surgical Treatment of Varicose Veins."—The Kennebec County Medical Society was addressed in Augusta, April 18, by Dr. William Reid Morrison, Boston, on "Management of Complications of Appendicitis."—Dr. Joseph H. Pratt, Boston, addressed the Penobscot County Medical Association, April 16, on "Recent Advances in the Diagnosis and Treatment of Pancreatic Disease."—A symposium on the management of head injuries was conducted before the York County Medical Society in Kennebunk, April 3; the speakers included Drs. Harry Eugene Macdonald Jr. and Erastus E. Holt Jr., Portland; William V. Cox, Lewiston; John P. Goodrich, Waterville, and Harry Brinkman, Wilton.

MASSACHUSETTS

Kober Medal Awarded to Dr. Frederick Russell.—The George M. Kober Medal for 1940 was awarded to Dr. Frederick F. Russell, professor of preventive medicine and epidemiology, Harvard Medical School, Boston, at the annual meeting of the Association of American Physicians in Atlantic City, May 8. Dr. Russell, who served in both the Spanish-American and World wars, took charge of the yellow fever and malaria work of the Rockefeller Foundation in 1920. Since his resignation five years ago, Dr. Russell has been teaching. In 1941 Dr. William deB. MacNider, dean and Kenan resident professor of pharmacology, University of North Carolina School of Medicine, Chapel Hill, N. C., will be awarded the medal for his research on the liver and kidneys, it was announced.

Society News.—A symposium on adolescence was presented before the New England Pediatric Society in Boston and Brookline, May 15; the speakers were Drs. James S. Plant, Newark, N. J.; John Rock and Mr. C. E. Allen.—The New England Hospital Association will hold its 1941 meeting at the Hotel Statler, Boston, March 12-14.—The Pentucket Association of Physicians was addressed in Haverhill, May 9, by Dr. Robert E. Fleming, Boston, on "The Problem of Alcoholism in Its Relation to the Medical Profession" and Mr. Frank Stratton, Boston, "Analysis of Alcohol: Its Results and Relations to Conditions and Circumstances." Dr. Leroy M. S. Miner, Boston, will address the society, June 27, on "Contact Points of Two Professions." Dr. Miner is both a doctor of

medicine and a dentist.—The New England Roentgen Ray Society was addressed in Boston, April 26, among others, by Drs. George M. Wyatt and William E. Ladd on "Genito-Urinary Diagnosis and Treatment in Infants and Children: Persistent Pyuria, Kidney Embryoma and Retroperitoneal Neuroblastoma."—Dr. Charles H. Best, Toronto, discussed "Factors Influencing the Production and Liberation of Insulin from the Pancreas" before the Boylston Medical Society, Boston, May 13.

MICHIGAN

Vox Pop.—Dr. Linn M. Cudworth, Perry, was interviewed on the Vox Pop program recently over the Columbia Broadcasting System, following his selection as the typical American small town doctor. Dr. Cudworth was chosen from the physicians nominated by the letters of Vox Pop listeners. Born in Bainbridge, N. Y., Dr. Cudworth observed his seventeenth birthday February 23. All his forty-four years of practice, since his graduation at Baltimore University School of Medicine in 1896, have been spent in and around Perry. In the interview, Dr. Cudworth depicted generally the typical life of a small town doctor.

Society News.—Dr. Roby John F. Renshaw, Cleveland, discussed "Gastroscopy, Its Use in Diagnosis and Treatment" before the Wayne County Medical Society, Detroit, May 13. This was a joint session with the East Side Medical Society. Dr. Henry H. Kessler, Newark, N. J., discussed "Rehabilitation of the Industrially Disabled" before the former society, May 6.—Dr. Frederick A. Collier, Ann Arbor, addressed the Washtenaw County Medical Society, May 14, on "Some Surgical Diseases of the Colon and Rectum."—Drs. Herbert W. Harris and Martin Batts Jr., both of Ann Arbor, discussed infected compound fractures and bone tumors, respectively, before the Kalamazoo Academy of Medicine, May 21.—Dr. Edward R. Krumbiegel, Milwaukee, discussed "Pertinent Points in Diagnosis, Prophylaxis and Treatment of Contagious Diseases" before the Muskegon County Medical Society, May 17.—Dr. Clifford H. Keene, Ann Arbor, discussed "Management of the Cancer Patient" before the Genesee County Medical Society in Flint, April 24.

MINNESOTA

Awards for Research.—The John and Mary R. Markle Foundation has given \$3,600 to support studies of the significance of the excretion of various porphyrins by Dr. Cecil J. Watson, associate professor and director of the division of internal medicine, University of Minnesota Medical School. Dr. Arthur T. Henrici, professor of bacteriology and immunology, has received a grant of \$500 from the National Tuberculosis Association for an investigation of the acid-fast actinomycetes in relation to tuberculosis. Dr. Charles E. McLennan, instructor of obstetrics and gynecology, University of Minnesota Medical School, Minneapolis, has been awarded a fellowship by the Commonwealth Fund for a year's study with Dr. Eugene M. Landis, professor of internal medicine, University of Virginia Department of Medicine, Charlottesville, on problems concerning the toxemias of pregnancy.

Society News.—Dr. Erling W. Hansen, Minneapolis, was elected president of the Minnesota Academy of Ophthalmology at a meeting in Minneapolis, April 12; other officers include Drs. William A. Kennedy, St. Paul; Theodore R. Fritzsche, New Ulm, vice presidents, and George E. McGeary, Minneapolis, secretary-treasurer.—Dr. Raymond W. McNealy, Chicago, addressed the St. Paul Surgical Society, April 11, on "Perforation in Peptic Ulcer: A Critical Review in 700 Cases."—Among others, Dr. Russell R. Hendrickson, Wabasha, discussed "Diagnosis of Tuberculosis" before the ninth annual joint meeting of the Winona and Wabasha County Medical societies and the fifteenth annual dinner given by the Buena Vista Sanatorium Commission to the physicians of the counties, April 8, in Wabasha.—Dr. Orwood J. Campbell gave the president's address before the Minnesota Pathological Society, Minneapolis, May 21, on "Hyperinsulinism."

MONTANA

Personal.—Dr. Earl S. Porter, Lewistown, has been appointed a member of the state board of medical examiners for a term ending Feb. 10, 1947. He succeeds Dr. Arter W. Deal, Lewistown, who was not a candidate because of illness.—Dr. Ferdinand R. Schemm, Great Falls, addressed the Mount Powell Medical Society, April 15, on "The Management of Edema in Heart and Kidney Diseases."

State Medical Meeting in Bozeman.—The Montana State Medical Association will hold its annual meeting in Bozeman, June 19-20, under the presidency of Dr. Harold W. Gregg, Butte. The following members of the staff of the University of Minnesota Medical School, Minneapolis, will offer the scientific program:

- Dr. Nathaniel Logan Leven, (1) Problems in Biliary Tract Surgery, (2) Skin Transplantation.
- Dr. Walter A. Fansler, (1) Diagnosis and Treatment of Carcinoma of Bowel, (2) Office Treatment of Anorectal Disease.
- Dr. William A. O'Brien, (1) Cause and Prevention of Newborn and Premature Deaths, (2) Changes in Morbidity and Mortality Problems Incident to Aging of the Population.
- Dr. Cecil J. Watson, (1) Treatment of Heart Failure, (2) Jaundice Considered from the Standpoint of Diagnosis and Pathologic Physiology.
- Dr. Ernest M. Hammes, (1) Craniocerebral Injuries, (2) Modern Treatment of Psychiatric Disorders.

NEBRASKA

Courses in Obstetrics and Pediatrics.—The Nebraska State Medical Association and the division of maternal and child welfare of the state health department cooperated in presenting three weeks of courses in obstetrics and pediatrics in April. The lectures in obstetrics were given by Dr. Morris Edward Davis, associate professor of obstetrics and gynecology, the School of Medicine, Division of Biological Sciences, University of Chicago, and those in pediatrics by Dr. Moses Cooperstock, assistant professor of pediatrics and infectious diseases, University of Michigan Medical School, Ann Arbor. Two groups of towns were the centers for instruction: one including Columbus, Pender, Norfolk, O'Neill and Ainsworth; the other, Nebraska City, Beatrice, York, Hastings and Kearney.

NEW JERSEY

Personal.—Dr. Harold E. Longsdorf, Mount Holly, recently received a citizenship award for "meritorious service in the field of public health," presented by the Mount Holly Service Club.

Society News.—The Cape May County Medical Society held a joint meeting and banquet with the Cape May County Bar Association, April 11, with Dr. Edward G. J. Beardsley, Philadelphia, and Hon. Allen B. Endicott, Atlantic City, president of the state bar association, as guest speakers. A program on "Clinical Aspects of Pulmonary Disease" was presented before the Essex County Medical Society, Newark, April 11, by Drs. George G. Ornstein, James B. Amberson Jr., and Harry Wessler, New York, and William F. Rienhoff Jr., Baltimore. Dr. Perrin H. Long, Baltimore, addressed the Hudson County Medical Society, Jersey City, recently, on "Clinical Evaluation of the Therapeutic Effects of Sulfamids, Neoprontosil, Sulfapyridine and the Sulfathiazoles."

NEW YORK

Lectures on Physical Therapy.—The council committee on public health and education of the Medical Society of the State of New York sponsored a course of lectures in physical therapy for St. Lawrence County Medical Society, Ogdensburg, and the Jefferson County Medical Society, Watertown. The speakers were:

- Dr. Richard Kovacs, New York, The Therapeutics of Heat; Medical and Surgical Diathermy; Physical Therapy in Arthritis, April 18.
- Dr. William Biernan, New York, Therapeutic Use of Ultraviolet Radiation; Physical Therapy in Medical Conditions, April 25.
- Dr. Kovacs, Galvanic and Low Frequency Currents; Electrodiagnosis; Physical Therapy in Gynecology, May 2.
- Dr. Kristian G. Hansson, New York, Physical Therapy in Traumatic Conditions, May 16.

Foundation Established to Extend Psychotherapy to Patients of Moderate Means.—The Lake George Foundation, Inc., was established recently for the purpose of aiding in the extension of medical care and occupational therapy to patients of modest means suffering from maladjustments and psychosomatic disorders, it is announced. The foundation will work in close cooperation with Tratelja Farms, Diamond Point on Lake George, which was established in 1938 and will assist in the development of mental hygiene and child guidance clinics in the neighboring city of Glens Falls. Officers of the foundation are Mr. Henry E. H. Brereton, Diamond Point, president; Drs. John A. P. Millet, New York, and Daniel Blain, New Canaan, Conn., vice presidents; Mr. Laurence Millet, New York, secretary, and Mrs. Henry E. H. Brereton, Diamond Point, treasurer. Funds donated to the foundation will be administered by a board of trustees selected from persons prominent in civic affairs, social work and business administration both in the local community and in distant cities, according to the announcement.

New York City
Clinical Conference for Medicomilitary Officers.—The Metropolitan New York chapter and the New Jersey chapter of the Association of Military Surgeons of the United States will hold a clinical conference for medicomilitary officer personnel at the U. S. Marine Hospital, Stapleton, June 22. There will be general inspection and ward rounds and case presentations on miscellaneous subjects. All officers and prospective officers of the medical departments of the armed forces of the United States are invited to attend.

Reunion of Premature Babies at Exposition.—Plans have been announced for a reunion June 14 of the babies cared for at the 1939 New York fair in the station for incubator babies directed by Dr. Martin A. Couney. Forty-three babies will be brought by their parents. Each baby will be given a silver cup carrying its name and the insignia of the fair. A certificate signed by Dr. Couney and the president of the fair stating that the baby gained its start in life at the incubator station at the 1939 exposition will also be presented. Five babies in the original group of fifty died. Of the five who died, three arrived in a hopeless condition. Of the forty-five surviving babies, one representative of that government to Argentina, the father having been congenital hip disease and cannot be transported. There were thirty-six female babies in the original group and fourteen males. The average age was 9.5 days, ages ranging from 1 to 67 days. Of the seven weighing on admission under 1,000 Gm., five are now living and two are dead; of the twenty-five between 1,000 and 1,500 Gm., twenty-two are living and three dead; of the thirteen between 1,500 and 1,700 Gm. and the five between 1,700 and 2,000 Gm., all are living. An exhibit of *Hygeia* and its work in public education was a feature of the station last year and is installed again this year.

OHIO

Cleveland Health Agencies Plan Coordination of Efforts.—Public and private health agencies have recently formed an "Advisory Committee on Health and Hospitals in Greater Cleveland," headed by Mayor Harold H. Burton, James A. Reynolds, president of the board of county commissioners, and Dr. Robert H. Bishop Jr., director of University Hospitals, with Edward D. Lynde, executive secretary of the Welfare Federation of Cleveland, as secretary. Under this directing group the committee was subdivided into a committee on health and one on hospitals. The committee on health will make a study of health services and of the laws relating to them, recommend revisions that will end wasteful duplication, fix responsibility, simplify procedure and otherwise minimize the cost of and improve health service, and finally, develop a five year (or longer) program with special emphasis on disease prevention and health education. The committee on hospitals will do the same for hospitals, laying emphasis on the provision of adequate facilities in a community that makes more and more use of its hospitals. Dr. James A. Doull, professor of public health and hygiene at Western Reserve University School of Medicine, will be general consultant and ex officio member of both committees and Dr. Lyman F. Huffman, chairman of the public health committee of the Cleveland Academy of Medicine, will be ex officio member of both committees.

OREGON

Faculty Appointment.—Dr. William Y. Burton, St. Louis, has been appointed assistant professor of radiology at the University of Oregon Medical School, Portland, effective July 1. Dr. Burton graduated from Washington University School of Medicine, St. Louis, in 1936.

Internal Medicine Society Meeting.—The North Pacific Society of Internal Medicine met in Portland, April 13, with members of the faculty of the University of Oregon Medical School as guest speakers. They included Dr. Warren C. Hunter on the occurrence of thrombosis in the veins of the legs; Dr. Hance F. Haney, accelerator fibers in the vagus nerve; William B. Youmans, Ph.D., physiology of the small intestine; Wilbert R. Todd, Ph.D., biochemical studies in the cationic metabolism, and Dr. Robert S. Dow, use of the oscilloscope in neuro-anatomy.

Society News.—Drs. Thomas A. McKenzie and William B. Neal addressed the Lane County Medical Society, Eugene, April 19, on "Some Gastro-Intestinal Problems" and "Injection Treatment of Hernia" respectively. Dr. Lyle B. Kingery, Portland, addressed the Mid-Columbia Medical Society, Hood River, April 23, on "Superficial Mycotic Infection of the Skin." Dr. Howard P. Lewis, Portland,

addressed the Polk-Yamhill-Marion Counties Medical Society, Salem, April 9, on "Subacute Bacterial Endocarditis and Brucellosis."—At a meeting of the Umatilla County Medical Society, Pendleton, April 9, the guest speaker was Dr. James M. Odell, The Dalles, on "Differential Diagnosis in the Problem of Pulmonary Tuberculosis."

PENNSYLVANIA

Society News.—Drs. John S. Packard, Allenwood, and Esmond R. Long, Philadelphia, addressed the Lycoming County Medical Society, Williamsport, May 10, on "Diagnosis and Treatment of Tuberculous Tracheobronchitis," and "Tuberculin Test and X-Ray in Tuberculosis Case Finding" respectively.—Dr. Joshua Montgomery Deaver, Philadelphia, addressed the Lebanon County Medical Society, Lebanon, May 14, on "Surgical Management of Diseases of the Rectum and Colon."—Dr. Lawrence W. Smith, Philadelphia, addressed the Cambria County Medical Society, Johnstown, May 9, on "Refrigeration as an Adjunct to the Treatment of Cancer."

Philadelphia

Osler Memorial Building.—The Old Autopsy House at Philadelphia General Hospital has been restored and will be dedicated, June 8, as the Osler Memorial Building. The occasion will mark the premier showing of the painting "Osler at Old Blockley" by Dean Cornwell.

Pittsburgh

Emmerling Lecture.—Dr. Tinsley R. Harrison, associate professor of medicine, Vanderbilt University School of Medicine, Nashville, Tenn., delivered the Drs. Charles and Karl Emmerling Memorial Lecture at the headquarters of the Pittsburgh Academy of Medicine, May 13. His subject was "Newer Phases of Management of Hypertension."

VIRGINIA

New Hospital Buildings.—Dedication of new buildings for the Lynchburg General Hospital was held May 21. The Hon. Clifton A. Woodrum, Roanoke, Congressman from the sixth district, made an address in the afternoon and in the evening Dr. Wilburt C. Davison, dean of Duke University School of Medicine, Durham, N. C., delivered an address on "Opportunities in the Practice of Medicine."

Postgraduate Course on Internal Medicine.—The department of internal medicine of the University of Virginia School of Medicine, Charlottesville, will conduct a postgraduate course on recent advances in internal medicine, June 17-22, under the auspices of the department of clinical and medical education of the Medical Society of Virginia. Members of the faculty will be the instructors.

WASHINGTON

New Health Officers.—Dr. Cecil R. Fargher, Wenatchee, recently health officer of Chelan County, has been appointed health officer of Clark County, succeeding Dr. John A. Kahl, Vancouver. Dr. George R. Kingston, Walla Walla, recently health officer in Walla Walla County, has been appointed in Chelan County and Dr. Harold M. U'Ren, Spokane, succeeded him in Walla Walla. Dr. William A. Johnson, formerly of Tacoma, has been appointed in Cowlitz County.

Society News.—Dr. Max Pinner, New York, addressed the King County Medical Society, Seattle, April 22, on "The Practitioner's Role in Tuberculosis Work" and Dr. Harold E. Nichols, Seattle, reported on the work of the Anti-Tuberculosis League of King County. Dr. Alfred A. Strauss, Chicago, was the speaker, May 6, on "Ileostomy and Its Use in Surgery of the Colon."—Dr. Verne C. Hunt, Los Angeles, was the guest speaker at an all day meeting of the Spokane Surgical Society, April 27, presenting several papers and discussions.

WISCONSIN

Women's Field Army Honors Dr. Sleyster.—The Wisconsin unit of the Women's Field Army of the American Society for the Control of Cancer sponsored a dinner in honor of Dr. Rock Sleyster, Wauwatosa, President of the American Medical Association, April 19, at the Hotel Schroeder, Milwaukee. Dr. Frank L. Rector, Evanston, Ill., representative of the American Society for the Control of Cancer, was the principal speaker on "Why Women Fight Cancer." Other speakers were Drs. Raymond G. Arveson, Frederic, president of the State Medical Society of Wisconsin, and Charles Fidler, Milwaukee.

GENERAL

Society News.—The American College of Radiology will hold its annual meeting at the Commodore Hotel, New York, June 12, with Dr. Irvin Abell, Louisville, Ky., as the principal speaker. The business session will be followed by a banquet and an address by Dr. Frederick M. Hodges, Richmond, Va.—The Associated State Postgraduate Committees will hold its fourth annual meeting at the Shelton Hotel, New York, June 12.

Meeting of Food Technologists.—The first meeting of the Institute of Food Technologists will be held at the Morrison Hotel, Chicago, June 17-19. The program will offer symposiums on food engineering and on the influence of processing on vitamin content. The third day will be devoted to visits to food manufacturing plants in Chicago. The institute was organized in Cambridge, Mass., in July 1933 following the second conference on food technology, held under the auspices of the Massachusetts Institute of Technology. Samuel C. Prescott, Sc.D., at the Massachusetts Institute, is president; Roy C. Newton, Ph.D., chief chemist, Swift and Company, Chicago, vice president, and George J. Hucker, Ph.D., New York State Agricultural Experiment Station, Geneva, secretary.

Lowest Infant Mortality Rate.—The Bureau of the Census recently issued statistics on the infant mortality rates for 1938, with comparisons of rates in previous years. The general rate for continental United States in 1938 was 51, the lowest since the birth registration area was established in 1915 and undoubtedly the lowest in the history of the country; the bureau states. In 1916 and 1918 the rate was above 100 deaths per thousand live births. Connecticut had the lowest rate, 36.3, and six other states had rates under 40: Massachusetts, Minnesota, Nebraska, New Jersey, Oregon and Washington. The highest rate in 1938 was 108.7 in New Mexico; the 1939 rate for New Mexico, however, was 145. Other high rates were reported in the following states: Arizona, 98.8; Georgia, 67.7; Louisiana, 67.1; North Carolina, 68.6; South Carolina, 80.3; Virginia, 66.2. Most of these represent considerable reductions from previous years, however, the report shows.

Reunions.—A dinner of the Federation of Catholic Physicians' Guilds will be held at the Biltmore Hotel, New York, Wednesday, June 12. Mr. Lorenz Brosnan, New York, counsel for the Medical Society of the State of New York, and the Rev. Ignatius Cox, S.J., the national moderator of the guilds, will be among the speakers. At 9 a. m. His Excellency Most Reverend Francis J. Spellman, archbishop of New York, will celebrate a mass in the Lady Chapel of St. Patrick's Cathedral for the members of the guilds; at 11 o'clock there will be a meeting of the executive committee of the federation of Catholic Physicians' Guilds at the Waldorf-Astoria Hotel in the club rooms of the Catholic Club on the seventeenth floor. These club rooms will also be used as general headquarters for all members of guilds of other states who wish to avail themselves of the hospitality of the Catholic Club during the American Medical Association convention.—A reunion of former interns and visiting physicians of the Children's Medical Service of Bellevue Hospital will be held at the hospital, Tuesday, June 11. Inspection of the service in the early afternoon will be followed by a general meeting at 4:30. A supper will be served later in the Students' Lounge of New York University Medical College. All former staff members are invited.

CANADA

Canadian Medical Association Meeting.—The seventy-first annual meeting of the Canadian Medical Association will be held in Toronto, June 17-21, at the Royal York Hotel, under the presidency of Dr. Frank S. Patch, Montreal. Among speakers who will address general sessions will be:

Dr. Edmund P. Fowler, New York, The Course and Prognosis of Otitis Media Under New and Old Methods of Treatment.
Dr. Joseph Gardner Hopkins, New York, Urticaria.
Dr. James H. Means, Boston, The Diagnosis and Treatment of Hypothyroidism.
Dr. James D. Adamson, Winnipeg, Man., Clinical Significance of Bronchial Obstruction.
Dr. John H. Couch, Toronto, Treatment of Injuries and Infections of the Hand.
Dr. Wilfred Alan Curry, Halifax, N. S., Intestinal Obstruction.
Dr. William Fulton Gillespie, Edmonton, Alta., Acute Abdominal Pain.
Dr. Jonathan C. Meakins, Montreal, Shock: Its Recognition and Treatment.
Dr. George Gavin Miller, Montreal, Subtotal Resection for Pericolic Ulcer.
Dr. Ray F. Farquharson, Toronto, Anorexia Nervosa.

At the first general session Dr. Patch will deliver his presidential address and Dr. Alan C. Brown, professor of pediatrics, University of Toronto Faculty of Medicine, will deliver the Blackader Lecture.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 3, 1940.

Lectures for Canadian Medical Officers

The earl of Athlone, governor-general designate of Canada, visited the Middlesex Hospital, London, to meet a group of Canadian medical officers who are attending a course of lectures there. When the first Canadian troops reached this country a series of day-long postgraduate lectures was arranged for 100 of the medical officers by the Middlesex Hospital, whose action they greatly appreciate. Apart from the practical value of the lectures and demonstrations, the courses have given an opportunity for social intercourse and have brought together doctors who have not met since their student days. Lord Athlone, who is a former chairman of the hospital board, the members of the board and the hospital staff met a group of forty Canadian medical officers who were in charge of Colonels R. M. Luton and J. A. Linton.

Substitute for Cod Liver Oil

British production of cod liver oil is almost stopped because most of the trawlers of the industry are in the service of the navy and imports of Norwegian oil have ceased. Up to the beginning of April imports were on a large scale, so that there is no immediate scarcity; but it is necessary to husband supplies. As a wartime substitute it has been decided to add to the British Pharmacopeia an oil expressed from the seeds of *Arachis hypogaea*, a native of Brazil, which is now extensively cultivated in India, West Africa, China and America. This oil has properties similar to those of olive oil. It will be vitaminized by addition of vitamins A and D to the standard of a good average specimen of the oil expressed from the fresh liver of the cod, *Gadus morrhua*. The addition to the pharmacopeia will embody a formula which will become a legal standard under the food and drugs act, with which vendors must comply in the sale of "medicinal" cod liver oil for human use as distinct from "veterinary" cod liver oil. For the latter there is already an official substitute sanctioned by the Ministry of Food. It consists of a mixture of cod liver oil of high vitamin potency and marine oil.

Imperial Cancer Research Fund

At the annual general meeting of the Imperial Cancer Research Fund Mr. Hugh Lett, president of the Royal College of Surgeons, said that the work of the fund began in 1902 for the purpose of fundamental research on the nature and causes of cancer. Cancer research had been made a general biologic investigation. This policy had placed the fund in a high position scientifically which was recognized in every civilized country. One great advance was the final determination by Bashford and Murray that cancer was at first purely a local condition originating in a group of cells. Cancer research had expanded beyond all expectation. It had been shown that cancer could be caused by application of certain pure chemical substances or physical agents. Therefore some forms could be prevented by appropriate precautions. A recent development was the evidence that hormones might be a decisive factor in the genesis of cancer of the breast.

In the annual report of the fund W. E. Gye, director of the scientific staff, points out that the study of the induction of new growths by application of chemical substances now forms a large part of cancer research. The demonstration that malignant new growths can be induced in almost any part of the body proves that the occurrence of some cancers, at least, is related to environment, which can be controlled, and is not

entirely dependent on some mysterious uncontrollable inborn peculiarity. This aspect of carcinogenesis has occupied the attention of the fund's scientific staff for several years.

Repeated applications of carcinogenic chemical substances produce epithelial hyperplasia and hypertrophy of skin. These changes are not specific but are common to many chronic and healing lesions due to different causes. Yet it is probable that the substances which induce cancer injure the tissues in a peculiar way. Polycyclic hydrocarbons, which are carcinogenic, evoke a characteristic reaction on the second to fourth day after application. Cells and their nuclei swell and cytoplasm becomes vacuolated. Multiplication of cells follows; the increase of cells and nuclei is progressive. Cytoplasmic degeneration appears in some of the cells, while others show signs of recovery. Chemically related noncarcinogenic hydrocarbons do not evoke the reaction.

TUMORS CAUSED BY FILTRABLE VIRUSES

It is only in filtrable tumors that antigenic agents have been found which are not normal constituents of the animal body. These agents, the viruses, are being investigated with great care. Two spontaneous sarcomas were transmitted by filtrates of the original tumors. Transmission of a spontaneous sarcoma by filtrate has not been previously recorded. One of the sarcomas occurred in a fowl which had never been in contact with experimental tumors. These observations controvert the suggestions which have been made that the filtrability of fowl sarcomas is acquired during transplantation or is a result of contamination by the filtrable agent of Rous sarcoma I. A sarcoma which originated near the site of implantation of a transplantable sarcoma was transplanted and subsequently transmitted by filtrates. This transplantation by filtrates contrasts with consistent failures in the laboratory to transmit, in the same way, sarcomas induced in fowls by carcinogenic agents.

PARIS

(From Our Regular Correspondent)

May 4, 1940.

Health of Colonial Recruits

Physician-General Blanchard discussed before the Academy of Colonial Sciences the sanitary measures employed on the occasion of the arrival in France of large numbers of men recruited from the French colonies of Asia, Africa and Oceania as soldiers and workers. Above all, the outbreak of infectious diseases had to be prevented among such diversified and susceptible groups. They had to be protected, he said, against their new pathologic environment as the native French must be against the dangers to health of which the former were the possible carriers. Their physical and moral health had to be maintained in the best condition and their selection carefully supervised. Shifts of men on a large scale with change of climate, environment and food constitute conditions favorable to endemics. Since 1938, in anticipation of the arrival of the colonials, health measures had been prepared. Dispensaries had been founded in the colonies, well equipped with prophylactic remedies and possessing important reserves of medicaments and materials. Djibouti on the Red Sea, for example, as well as Dakar on the Atlantic Ocean had been supplied with the personnel and material necessary for the sanitary control with which these centers might eventually be charged. The outbreak of the war proved the efficacy of the measures taken. The antiplague vaccines of the Pasteur Institute of Tananarive, the anticholera vaccines of the Pasteur Institute of Indo-China and the anti-malaria vaccines (for yellow fever) of the Pasteur Institute of Dakar deprived these diseases of their local menace as well as that due to importation. The pneumococcus, to which the colonial natives were susceptible and which had aroused grave anxieties during the war of

1914-1918, had been completely guarded against by an ensemble of sanitary measures pertaining to clothes, transportation, anti-pneumococcus vaccination and the regular use of sulapyridine. Though cerebrospinal meningitis had acquired a disquieting spread in the tropical zone and the Far East, nevertheless recruits had to be drawn from these regions. Accordingly, antimeningococcus vaccination and sulfonamide therapies were added to the former methods employed in the search for germ carriers and for buccopharyngeal sterilization. Ten million tablets sent by air enabled the carrying out, on an unprecedented scale, of prophylaxis. Necessary supplies against dysentery were on hand. Trachoma, leprosy, trypanosomiasis and venereal diseases had been provided against. Thymol and oil of chenopodium assured against parasites in the intestine. The danger of tuberculosis was guarded against by the systematic examination of the recruits and by inoculation with BCG vaccine by scarification. This huge program of curative and prophylactic sanitation was conducted in close cooperation with British sanitary staffs.

Hypersensitiveness to Postoperative Infection

Postoperative deaths from infection often occur in spite of the fact that the results of surgical intervention were favorable and the patient was well examined and prepared. The symptoms that precede death are high fever, a positive blood culture and the evidence of the bone marrow at necropsy. The impression created is that of an abnormal reaction of the individual. The edematous condition of the lung suggests an anaphylactic shock, a view supported by hematemesis, hematuria and intestinal infarcts. According to Jean Louis Lortat-Jacob, the hypersensitiveness that seems to be at the bottom of these accidents might be "the form that is intolerant of immunity." Hypersensitiveness not only is determined by albuminoid substances or serums but is observed likewise in the presence of infectious germs. Lortat-Jacob recently submitted multiple proof in a significant experimental study.

Immunity and hypersensitiveness are opposed to each other but yet capable of succeeding each other in the same person. Every individual that is a carrier of germs or is hypersensitive may, under certain conditions, become the seat of grave manifestations of hypersensitiveness to infection, specific or non-specific. As Reilly has demonstrated, the vegetative nervous system plays a preponderant part. Clearcut vagotonia ought to be considered as favorable to reactions of hypersensitiveness. This vagotonia should be determined by the investigation of the oculocardiac reflexes, by atropine or by intradermal reactions with polyvalent vaccines. Preventive and curative therapy consists in stimulating the sympathetic nerve and avoiding acidosis rather than in insisting on vaccinations, which should be reserved for subjects presenting a positive intradermal reaction. Surgical intervention is performed only when intradermal reactions have become negative.

Erythroblastosis

Besides erythroblastic syndromes such as those of cancer and tuberculosis of the spleen, one observes more and more pathologic conditions characterized by a "dysgenic hyperplasia of the bone marrow" that involve cryptogenic processes. The latter are not always accompanied by lesions or hepatosplenic symptoms but are often limited to foci of erythroblastic myeloid metaplasia. Professor Pittaluga of Madrid reported to the French society of hematology a case of grave anemia with fever and subicterus, enormous increase in the size of the spleen and liver, profound disturbances of water and fat metabolism and progressive decrease of erythrocytes of hyperchromatic tendency but without megalocytosis, with leukopenia and an increasingly pronounced erythroblastosis that dominated the pathologic picture until death set in. This case, minutely studied with the aid of laboratory technics, gave Pittaluga an

opportunity to elaborate his views on erythroblastosis and its diagnosis. There is a difference, he said, between erythroblastic and reticulocytic reactions. Reticulocytes do not obey the same factors as erythroblasts. Cryptogenic erythroblastosis in adults presents a pathologic background, with simultaneous lesions of the myeloid blood system, spleen and liver and metabolic alterations. These changes are polymorphic and regularly associated with massive and persistent erythroblastosis. The etiology of this disease may be infectious, since a number of symptoms point in that direction. However, the blood culture is negative. The causative agent may also be sought in deficiency of nutrition, of vitamin assimilation and of the assimilation of certain primary groups of food substances, to which constitutional factors point. Intoxication may also be responsible. Dysfunction in the assimilation of the vitamins, notably of B₂, of A and of D, is probable. Among intoxications tar derivatives have been suspected. Constitutional factors, however, cannot be excluded; etiologically blood diseases must be referred to these factors. Several blood diseases, the speaker said, were due to constitutional disorders and had their root in a morbid heredity. Accordingly, essential erythroblastosis must be considered a hereditary disease that is belatedly activated perhaps by an accidental infection. It involves a profound and complex biochemical and physicochemical change of remote origin and has a fatal prognosis.

BERLIN

(From Our Regular Correspondent)

April 26, 1940.

Midwives, Nurses and Nurse Maids

A sharper distinction is to be drawn hereafter between midwives, nurses and nurse maids. Nurses as well as nurse maids may not be officially certified as midwives, and vice versa. Certification as a midwife automatically cancels certification as regular nurse or child nurse. There is, however, nothing to prevent change from one of these occupations to the other. Nurses may not take over a maternity case or the care of a healthy newborn infant if they have handled a regular case three days previously. Neither may a nurse take over the care of a healthy lying-in woman until ten days have elapsed after delivery. The training of nurse maids (Suglings- und Kinder-schwester) has likewise been reorganized. In addition to a satisfactory examination, evidence must be presented of Aryan descent and political reliability. After the examinations, the nurse must serve six months in public welfare work and in a children's clinic. To be eligible for training the applicant must be 18 years old and have spent one year in domestic service in a family, an institution or a school. The training lasts one and one-half years and requires a state examination. The title of child nurse is legally protected against fraudulent use.

Midwives may hereafter exercise their occupation until they reach the seventieth year. Prolongation of service may be officially granted in exceptional cases, conditioned on physical and mental vigor.

Rabies

According to a report of the department of the interior, rabies is prevalent in the eastern sections of present Germany. Regulations have been adopted for its control and the education of the population. For this an educational film is used. Dogs appearing in public must be kept on the leash.

Malformations

A new order of the department of the interior requires that malformed infants be reported to the respective board of health. These deformities include idiocy and mongolism, especially in combination with blindness and deafness, microcephalus, grave or progressive hydrocephalus, and malformations of all kinds.

BUENOS AIRES

(From Our Regular Correspondent)

April 26, 1940.

Tuberculosis Control

Recently in these columns information was given pertaining to the control of tuberculosis (*THE JOURNAL* May 4, p. 1822). According to a report for the city of Buenos Aires covering the year 1939, by Dr. A. A. Raimondi, the number of beds in the municipal tuberculosis hospitals has not been increased in accordance with existing needs. In 1939, 2,794 persons died of tuberculosis, 1,664 men and 1,130 women. However, the mortality rate for tuberculosis has greatly decreased during the last decade. Visits were made in 2,463 homes in which death from the disease had occurred. Of 609 children exposed to the infection 263 were found diseased. Numerous organizations in Buenos Aires are engaged in promoting and extending the control of tuberculosis.

Hookworm Disease

In 1924 a service bureau of the national department of public health was organized in Corrientes, the province most affected with hookworm disease. In 1934 a law was passed making treatment and prophylaxis compulsory in Argentina. Those suffering from the disease and unable to prove that they are under private treatment are treated without charge at the government stations. Under certain conditions patients may be isolated in their homes. Hygienic regulations have also been prepared for homes and factories.

Two Argentine gunboats have been fitted out with laboratories for scientific tests to be made by a commission headed by Dr. Carlos Fonso Gandolfo, professor of infectious diseases in Buenos Aires, and consisting of a staff of more than twenty physicians and eighty student helpers to undertake an investigation of the infection. This investigation is to last two weeks. For the duration of this investigation, twenty additional laboratories will be set up. In addition, lectures, films and illustrated printed material will be used to educate the population. This investigation has the support of the responsible health boards and of the army and navy, and much is expected from it. The national health board treated 36,700 persons in these regions during the last year. Lack of cooperation on the part of the population and laxness in enforcing existing penalties have interfered with the degree of disease control desired.

Congress of Otorhinolaryngologists

The Congress of Otorhinolaryngologists, the first of its kind, took place in Buenos Aires, April 21-25. Its origin goes back to a suggestion advanced in 1938 by Brazilian specialists meeting in Rio de Janeiro. Dr. Eliseo V. Segura, professor of otorhinolaryngology in Buenos Aires, presided. Official delegations of Brazil, Chile, Peru, Uruguay and Venezuela participated. The papers discussed infections of the accessory nasal cavities and their treatment, conservative surgery of the middle ear, otorhinolaryngologic localization of blastomycosis, and the physiopathology of the inferior portion of the labyrinth. Two surgical sessions were also conducted with practical demonstrations by visiting surgeons. Professor Segura pointed out that South American medical science had come into its own and could give an account of itself in contributing independently to the progress of medicine, free from the tutelage of Europe. The congress was well attended. The next congress will meet three years hence in São Paulo, Brazil, with Prof. de Paula Santos as its presiding officer.

Nutrition in Chile

An investigation on nutrition was conducted in Chile by Carlo Dragoni and Etienne Burnet, an expert on hygiene from the League of Nations, among 593 families involving 3,383 persons (*Revista chilena de higiene* 1:409 [Oct.-Dec.] 1938).

Forty-one per cent of these families lived in Santiago de Chile. Expenditures for food represented 78.3 per cent of the total expenditures. In general, wages paid in many of the large mining, textile and construction industries, the report indicates, permit a standard of living on a modest and sufficient scale. In the small industries, trades and small business, however, living conditions are largely unsatisfactory. Four meals a day are customary. For breakfast a warm beverage is always served, such as coffee, tea and mate together with bread. Butter is rarely used. The afternoon repast has not the same significance as breakfast and consists likewise of a warm beverage and bread. The same types of food are represented in the two principal meals. In 43 per cent of the meals the cazuela, the national dish consisting basically of meat and fish, is found. A comparative analysis showed that more meals had a meat basis than a vegetable basis, such as beans and potatoes (7,454 vs. 4,971). Beverages mostly in use are tea and sugared coffee. The use of wine is rare. An adequate or plentiful nutritional status was found in 180 of the 593 families, comprising 924 persons. In 131 (764 persons) it was just sufficient; 280 families (1,689 persons) were more or less underfed. Hence, according to this investigation, half of the average population suffer from malnutrition. According to the principles set up in London by the conference on nutrition of the League of Nations, the so-called protective foods should constitute the basis, and cereals and sugar should be regarded as supplementary energy foods. In Chile the old nutritional conceptions still prevail.

Personals

Prof. Bariano R. Castex, professor of internal medicine, succeeded Dr. Alberto Peralta Ramos, professor of gynecology, as president of the Academy of Medicine in Buenos Aires.

Dr. Nicanor Palacios Costa, professor of gynecology, succeeded Prof. José Arce, retiring professor of surgery, as dean of the medical faculty in Buenos Aires.

Dr. Enrique Castano was appointed professor of clinical urology in Buenos Aires in place of Professor Maraini, who recently died. Dr. Atilio J. Costa was named professor of surgical techniques in place of Prof. Boscá Arana, deceased.

Dr. José A. Saralegui, associate professor of the faculty of medicine, was appointed director of the municipal institute of radiology and physical therapy in Buenos Aires. He has studied in the United States.

Prof. Ramón Doria was appointed dean of the medical faculty in Asunción, Paraguay.

Marriages

EDWARD MARSHALL SANDIDGE, Pleasant View, Va., to Miss Nellie Penn McDaniel of Sandidges, April 3.

ERNEST LYNWOOD BAGBY to Miss Barbara Lucille Riddell, both of Richmond, Va., April 27.

LOUIS BENJAMIN SHEPPARD to Miss Callie Helen Nolde, both of Richmond, Va., April 25.

KENNETH B. WALBORN to Miss Annie Evangeline Pool, both of Dallas, Texas, March 24.

LEOPOLDO E. LOPEZ to Miss Edith Gil Santana, both of Caracas, Venezuela, May 11.

FRANK SAMUEL GRIFFIN JR., Liberty, Texas, to Miss Helen Shattuck of Alto, March 10.

DONALD HARPER LEEPER JR. to Miss Fofa Mezitis, both of Washington, D. C., in April.

LEWIS ALEXANDER VANCE, Boston, to Miss Jane Kelley of Brookline, Mass., April 20.

HUGH H. TROUT JR. to Miss Elizabeth Page Brown, both of Roanoke, Va., April 6.

E. J. TUCKER JR., Liberty, Texas, to Miss Lola Dickson, March 10.

Deaths

Charles Benjamin Wright * member of the Board of Trustees of the American Medical Association, died at his home in Minneapolis, May 31, of myocarditis and emphysema, aged 63.

Dr. Wright was born Nov. 3, 1876, in Kemptville, Ontario. With his parents he moved to Grand Forks, N. D., and was graduated from the University of North Dakota in 1898, at which time he was a star on the University of North Dakota football team. He then entered the medical department of Johns Hopkins University, receiving his degree in medicine in 1902 and becoming house officer at the Johns Hopkins Hospital. After graduate study abroad in Vienna, Berlin and Rome in 1913 and 1914 he became associate professor of medicine at the University of Minnesota Medical School from 1920 to 1935 and had been professor of clinical medicine since 1935.

He was a fellow of the American College of Physicians and member of the Central Society for Clinical Research and also a member of the Societies of Internal Medicine and of Pathology in Minnesota. He had from time to time published scientific contributions on rectal bleeding, histamine, undulant fever and microcytic anemia.

Early in his career Dr. Wright became interested in the work of organized medicine, serving as a member of the House of Delegates of the American Medical Association as a representative from Minnesota, from 1930 through 1933. In that year he was elected a member of the Board of Trustees for a term of five years and was reelected for another five year term in 1938. At the time of his death he was chairman of the Executive Committee of the Board.

Dr. Wright was devoted to the work of the American Medical Association, giving unstintingly of his time and his thought to the numerous problems which have concerned the profession in recent years. His loyalty, his impatience with deceit and his aggressiveness on behalf of a free medical profession made him distinguished as a leader.

Joseph Elzear Lamoureux, Lowell, Mass.; Laval University Faculty of Medicine, Quebec, 1893; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1893; member of the Massachusetts Medical Society; formerly chairman of the school committee; on the staff of St. Joseph's Hospital; aged 70; died, March 16, of carcinoma of the throat.

Frederic Bertrand, Sherbrooke, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1905; Laval University Faculty of Medicine, Quebec, 1906; fellow of the American College of Surgeons; on the staff of Hôpital General St. Vincent de Paul; aged 58; died, February 9, of myocardial infarction.

Harold Philipp Kuhn * Kansas City, Mo.; University of Kansas School of Medicine, Kansas City, 1906; fellow of the American College of Surgeons; professor of oral surgery, Kansas City-Western Dental College; attending surgeon to St. Luke's and Kansas City General hospitals; aged 59; died, April 15, of malignant hypertension and chronic nephritis.

James Thomas Jeter, Santuck, S. C.; Medical College of the State of South Carolina, Charleston, 1890; member of the South Carolina Medical Association; formerly member of the state senate; served during the World War; aged 72; died, April 12, in the Veterans Administration Facility, Columbia, of prostatic hypertrophy, uremia and chronic cystitis.

Guy Logan Qualls * Colonel, M. C., U. S. Army, Fort Benning, Ga.; St. Louis University School of Medicine, 1909; entered the medical corps of the United States Army in 1912; served during the World War; after passing through the various grades became a colonel in 1939; fellow of the American College of Surgeons; aged 57; died recently.



CHARLES B. WRIGHT, M.D.,
1876-1940

Paul Stearns Mertins * Montgomery, Ala.; Harvard Medical School, Boston, 1900; member of the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; on the staff of St. Margaret's Hospital; aged 63; died, April 10, of cerebral hemorrhage, uremia and hypertension.

L. Leo Doane, Highland Park, Ill.; College of Physicians and Surgeons, Baltimore, 1886; member of the Medical Society of the State of Pennsylvania and the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; aged 83; died, April 11, of acute dilatation of the heart.

Benjamin Rammel Veasey * Wilmington, Del.; Jefferson Medical College of Philadelphia, 1894; fellow of the American College of Surgeons; formerly state senator; at one time member of the board of education; on the staff of the Wilmington General Hospital; aged 80; died, April 6, of gastric carcinoma.

Arthur William Karch, Monroe, Mich.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1912; member of the Michigan State Medical Society; mayor; on the staff of the Monroe Hospital; aged 52; died, April 29, of gangrenous diverticulitis and myocarditis.

James Blackman Woodruff * New Orleans; University of Tennessee Medical Department, Nashville, 1900; member of the Tennessee State Medical Association; acting assistant surgeon, U. S. Public Health Service; aged 63; on the staff of the U. S. Marine Hospital, where he died, April 22.

Leonard Herbert Stewart * Kalamazoo, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1897; past president of the Kalamazoo Academy of Medicine; trustee of the Kalamazoo College; aged 82; died, April 21, in the Borgess Hospital of pyelitis and septicemia.

Arthur L. Oilar, Russiaville, Ind.; Indiana University School of Medicine, Indianapolis, 1913; served during the World War; formerly epidemiologist for the state board of health, and health officer of Talbot County, Md.; aged 43; died, April 25, of coronary occlusion.

Robert John Jones * Greenfield, Ohio; Medical College of Ohio, Cincinnati, 1895; past president of the Highland County Medical Society; fellow of the American College of Surgeons; one of the founders and on the staff of the Greenfield Hospital; aged 68; died, March 11.

James Alexander Graham, Tagbilaran, Philippine Islands; Baltimore Medical College, 1897; member of the Philippine Islands Medical Association; a medical missionary; also minister; superintendent of the Presbyterian Mission Hospital; aged 65; died, March 25.

Asa Wesley Graves, Lacey Spring, Va.; Medical College of Virginia, Richmond, 1910; member of the Medical Society of Virginia; served during the World War; aged 61; died, April 12, in the Rockingham Memorial Hospital, Harrisonburg, of diabetes mellitus.

Theodore Gervais, Berthierville, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1893; Laval University Faculty of Medicine, Quebec, 1893; aged 71; died, February 18, of pneumonia.

James R. Roberts, Hamilton, Ont., Canada; McGill University Faculty of Medicine, Montreal, Que., 1901; vice president of the International Society of Medical Health Officers; medical health officer; served during the World War; aged 61; died, March 15.

Frederick Newton Whitehorse, New York; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1895; New York Homeopathic Medical College and Hospital, 1898; aged 67; died, April 6, of coronary thrombosis.

Guy Arnold McCormack, Little Rock, Ark.; University of Arkansas School of Medicine, Little Rock, 1914; member of the Arkansas Medical Society; veteran of the Spanish-American and World wars; aged 66; died, April 6, of chronic myocarditis.

George De Loach Waller Sr., Bessemer, Ala.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; member of the Medical Association of the State of Alabama; aged 69; died, April 12, of hypertensive heart disease.

Emmett Earle Linville, Mount Olivet, Ky.; Hospital College of Medicine, Louisville, 1907; member of the Kentucky State Medical Association; served during the World War; aged 57; died, April 28, of coronary occlusion.

Thomas Youngman, Coral Gables, Fla.; Hahnemann Medical College and Hospital of Philadelphia, 1904; at one time bank president; formerly president of the board of health of Ventnor, N. J.; aged 59; died, March 11.

James B. Vaughan @ Monroe, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1901; medical director of the Vaughan-Wright-Bendel Clinic; aged 62; died, April 14, of acute dilatation of the heart.

John A. Mann, Wellington, Mo.; St. Louis Medical College, 1876; member of the Missouri State Medical Association; at one time bank president; formerly mayor; aged 88; died, April 20, of hemorrhage of the bladder.

Edward N. Gerard, Leonard, Mo.; University Medical College of Kansas City, 1895; member of the Missouri State Medical Association; aged 70; died recently in the Grim-Smith Hospital, Kirksville, of uremia.

Peter Winston Prather, Woodland Mills, Tenn.; University of Louisville (Ky.) Medical Department, 1906; member of the Tennessee State Medical Association; aged 61; died, April 14, of coronary thrombosis.

Edward S. Dwight, Smyrna, Del.; Yale University School of Medicine, New Haven, 1876; member of the Medical Society of Delaware; past president of the Kent County Medical Society; aged 86; died, March 17.

Ella Virginia Cameron, Philadelphia; Eclectic Medical College of the City of New York, 1895; aged 75; died, March 17, in a hospital at Greystone Park, N. J., of chronic myocarditis and mitral stenosis.

David Bernhard Hirschfeld @ New York; Cornell University Medical College, New York, 1910; aged 60; died, April 8, in the Mount Sinai Hospital of infection of the hand and suppurative phlebitis.

William E. Braun, Eldorado, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 88; died, April 29, in the Ferrell Hospital as the result of injuries received when struck by an automobile.

William Kenney, San Francisco; University of California Medical Department, 1905; assistant clinical professor of medicine at the Stanford University School of Medicine; aged 61; died, March 3.

Elliott Irving Osgood, Hiram, Ohio; Cleveland University of Medicine and Surgery, 1897; for many years a medical missionary in central China; aged 69; died, April 13, of cerebral hemorrhage.

Edward Routh Hines, Rocky Mount, N. C.; Medical College of the State of South Carolina, Charleston, 1916; aged 59; died, April 3, of ruptured esophageal varix with cirrhosis of the liver.

George Thomas Tubb, Aberdeen, Miss.; Memphis (Tenn.) Hospital Medical College, 1899; member of the Mississippi State Medical Association; aged 71; died in April of carcinoma of the liver.

George Guy Bailey @ Ipswich, Mass.; Harvard Medical School, Boston, 1892; on the staff of the Benjamin Stickney Cable Memorial Hospital; aged 75; died, March 30, of coronary thrombosis.

Parrott Rastus Hardee, Durham, N. C.; College of Physicians and Surgeons, Baltimore, 1885; aged 78; died, April 14, of bronchopneumonia and carcinoma of the stomach with metastasis.

Don Duff Campbell, Miami Beach, Fla.; University of Toronto Faculty of Medicine, Toronto, Canada, 1904; aged 65; died, March 27, in St. Francis Hospital of cirrhosis of the liver.

Randolph D. Jones, Elza, Ga.; University of Georgia Medical Department, Augusta, 1899; member of the Medical Association of Georgia; aged 63; died in March of heart disease.

Robert Lee Page, Batesville, Va.; Bellevue Hospital Medical College, New York, 1884; member of the Medical Society of Virginia; aged 76; died, April 29, of cerebral hemorrhage.

Lyman Jairus Clements @ Washington, D. C.; George Washington University School of Medicine, 1906; aged 74; died, April 12, of carcinoma of the parotid gland.

Edwin Rhinehart Yancey, Monroe, La.; Medical Department of Tulane University of Louisiana, New Orleans, 1910; served during the World War; aged 53; died, March 16.

Ernest Ray Reynolds @ Chicago; Northwestern University Medical School, Chicago, 1900; on the staff of the Englewood Hospital; aged 65; died, April 24, of coronary occlusion.

Haydn Mozart Simmons, San Francisco; University of California Medical Department, San Francisco, 1901; aged 65; died recently in St. Francis Hospital of lobar pneumonia.

Mitchell C. Shelton, Joplin, Mo.; Barnes Medical College, St. Louis, 1894; member of the Missouri State Medical Association; aged 72; died, April 24, of coronary occlusion.

Josephine Ida Burpeau, Newark, N. J.; New York Medical College and Hospital for Women, New York, 1885; aged 82; died, March 25, in East Orange of cerebral hemorrhage.

Garrett Bancroft Breckinridge Larkeque, Pownal, Vt.; Homeopathic Hospital College, Cleveland, 1893; aged 68; died recently of chronic myocarditis and chronic arteritis.

Samuel Guy McCune, McKeesport, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1899; aged 65; died recently of cerebral hemorrhage and influenza.

Hugh Wilmer Duke, Amarillo, Texas; Baylor University College of Medicine, Dallas, 1901; justice of the peace; aged 66; died, March 23, of chronic myocarditis.

John Harvey @ Bryn Mawr, Pa.; Jefferson Medical College of Philadelphia, 1910; for many years on the staff of the Bryn Mawr Hospital; aged 57; died, March 18.

William Edward Segrest, Sardis, Miss.; Memphis (Tenn.) Hospital Medical College, 1900; aged 64; died, April 10, of cerebral hemorrhage and arteriosclerosis.

James Malcolm Miller, Villa Grove, Ill.; St. Louis University School of Medicine, 1905; aged 78; died, April 4, of chronic myocarditis and arteriosclerosis.

Albert Charles Geyser, Huntington, N. Y.; Bellevue Hospital Medical College, New York, 1896; aged 75; died, March 5, of pneumonia and arteriosclerosis.

Frederick E. Hammond, French Lick, Ind.; Hospital College of Medicine, Louisville, Ky., 1898; aged 68; was found dead in April of heart disease.

Teil John Berggren, San Diego, Calif.; American Medical Missionary College, Chicago, 1906; aged 63; died, March 10, of cardiac decompensation.

Daniel B. Rigdon, Cheyenne, Wyo.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 92; died, April 18, of gastric hemorrhage.

James A. Gold, Frankstown, Pa.; Homeopathic Hospital College, Cleveland, 1887; aged 79; died recently in Hollidaysburg of arteriosclerosis.

William Hermann Schultz, Cleveland, Tenn.; Chattanooga (Tenn.) Medical College, 1898; aged 66; died, April 28, of coronary occlusion.

George C. Wegefath, Baltimore; Baltimore Medical College, 1897; aged 64; died, March 22, in the Johns Hopkins Hospital of peritonitis.

Claude Frank Hayes, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1897; aged 66; died recently of coronary thrombosis.

Ernest Bruce Hatch @ Miami, Fla.; Atlanta College of Physicians and Surgeons, 1910; aged 54; died, April 2, of coronary thrombosis.

Zealand E. Crawley, Columbia, Miss.; University of Nashville (Tenn.) Medical Department, 1900; aged 65; died, April 10, of urcemia.

Roland Rufus Johnson, Brooklyn; Long Island College Hospital, Brooklyn, 1907; aged 58; died, April 29, of acute coronary occlusion.

Maurice G. Slocum, Kansas City, Mo.; Keokuk (Iowa) Medical College, 1897; aged 65; died, April 12, of cardiac decompensation.

William F. Perry, Los Angeles; Kentucky School of Medicine, Louisville, 1885; aged 87; died recently of hypostatic pneumonia.

Louis John Feid, Cincinnati; Cincinnati College of Medicine and Surgery, 1893; aged 73; died, April 22, of coronary occlusion.

Sylvina Apphia Abbott, Cranston, R. I. (licensed in Massachusetts in 1894); aged 76; died, April 12, of angina pectoris.

William Dyer Gardner, Plain City, Ohio; Starling Medical College, Columbus, 1900; aged 64; died, April 30, of heart disease.

Alphonso L. Ruffe, Grand Rapids, Mich.; Chicago Homeopathic Medical College, 1887; aged 86; died, April 13, of uremia.

of a patient with Banti's disease and hematemesis, with apparent relief. Rhoads and Stein (*Am. J. Dis. Child.* 56:119 [July] 1938) ligated the coronary vessels and removed the spleen from a boy with Banti's disease who had bled seriously from esophageal varices demonstrated by roentgenograms. Bleeding stopped and subsequent examination revealed reduction in the size of the varicosities. L. R. Dragstedt has removed the spleen, ligated the veins at the cardia and injected 5 cc. of sodium morrhuate into the veins above the ligatures in three cases of portal hypertension, splenomegaly, esophageal varicosities and repeated severe hemorrhages. Two of the patients remained well for periods of two and four years, and roentgenograms revealed the absence of varicosities which were demonstrated before operation. In the third case the varicosities remained just as large after the operation and injection, and death occurred later of hemorrhage.

"BILIOUS FEVER"

To the Editor:—In the early history of Davenport, according to the records, a prominent citizen died of "bilious fever." Within two weeks, two other members of the same family died of the same thing. I should like to know if at that time (about 1835) "bilious fever" was a common diagnosis. Was it considered a clinical entity? From our present knowledge what would be the probable diagnosis? It may have been malaria, which was prevalent here in those days, except that three deaths so close together would indicate some contagious disease. Typhoid was common, but the doctors at that time were not often fooled with this diagnosis.

W. H. Rendleman, M.D., Davenport, Iowa.

ANSWER.—The diagnosis "bilious fever" was popularized by Maximilian Stoll (1742-1787), who regarded all fevers as due to "gastrobilious" impurities. William Buchan, of Edinburgh, whose *Treatise on the Prevention and Cure of Diseases* was published in Philadelphia in 1784, states that "when a continual, remitting or intermittent fever is accompanied with a frequent or copious evacuation of bile, either by vomit or stool, the fever is denominated bilious." His description of "bilious fever" suggests most strongly typhoid fever. Dr. John Sappington in his *Theory and Treatment of Fever*, published in 1844, devotes a chapter to the "common bilious or bilious remittent fever." Sappington's description also suggests typhoid. He described a long continued fever with delirium, diarrhea, brown coated tongue, full soft pulse and great thirst. Charles Murchison, in his treatise on the Continued Fevers of Great Britain (London, 1873), lists "bilious fever" as a synonym for typhoid.

PROBABLE MILIUM OF EAR

To the Editor:—A young man under treatment for a duodenal ulcer called my attention to a group of white indurated papules on the back of each ear. At present there are about thirty on each ear but he states that there have been many more than that at times. They vary in size from about 0.1 to 0.5 cm. His wife noticed them about three months ago and he states that she expressed some drops of clear secretion from them which she noticed had an offensive odor. He says that at weekly intervals she has so expressed them, the last time four days previous to his present visit. I could express no visible drops of secretion but on rubbing my finger firmly over them enough was expressed to corroborate her statement as to the odor. It was offensive and required brisk rubbing with soap and water to remove. A small incision in one of the larger papules did not produce any appreciable amount of secretion at this time. There is present a mild oily seborrhea and a mild acne vulgaris. The young man is of dark complexion. He has been using acetylsalicylic acid and acetylsalicylic acid compound frequently, from 10 to 30 grains daily (0.65 to 2 Gm.), for several months for a unilateral (right side) headache of as yet undetermined origin. A general examination following a gastric hemorrhage in November 1938 revealed an epigastric hernia and a duodenal ulcer. Previous to the hemorrhage he had had the same type of headache as now and a mild constipation but none of the usual symptoms of ulcer. Placed on strict medical management he felt better generally, the headaches were relieved and an x-ray examination in January 1939 was negative. There was no evidence at the previous ulcer. He was allowed a more liberal diet until the return of the headaches but has obtained practically no relief from a strict medical management since. In the general examination, blood studies including a Wassermann test were normal. His eyes and sinuses showed no abnormalities. I have not seen a similar eruption with acne or seborrheic dermatitis previously. Is it probably a part of the picture of one of these entities or a separate condition of the sebaceous or oil glands? I mention his general condition at some length as I found nothing in several textbooks on dermatology by which I could make a definite diagnosis. M.D., Minnesota.

ANSWER.—White hard papules from 0.1 to 0.5 cm. in diameter suggests milium, which means millet seed. It is true that these papules seldom exceed 0.2 cm. in diameter, but they sometimes grow larger than this. It is these large ones whose content of subcutaneous matter is most apt to degenerate, soften and smell bad. If this is the correct diagnosis, the odor resembled that of butyric acid, which is offensive and persistent enough. The small incision mentioned should have freed the contents of the papule; but it is likely that pressure was needed to bring out the hardened sebum. After cleansing the skin with alcohol,

one can incise the skin covering the papule and press out the pearl-like contents. The lesions seldom recur. The daily application of lotio alba (sulfurated potassa 1 Gm., zinc sulfate 1.5 Gm. and rose water to make 30 cc.) will aid in preventing their formation, which results from the overgrowth of the horny layer, a factor in the causation of acne.

TREATMENT OF PINWORM INFESTATIONS

To the Editor:—Do threadworms ever get into the urinary bladder? A 7 months old baby has them in the bowels, nose and mouth. The parents also have them. I am using chenopodium oil on the baby internally and 1 per cent chenopodium oil in olive oil in the nose. I am not sure that the worms are in the bladder but the mother states that they are found under the foreskin. Please send information.

W. A. Brand, M.D., Redwood Falls, Minn.

To the Editor:—Can you inform me what the new and improved methods of therapy are for pinworm infestation referred to by Willard H. Wright in the March 1939 issue of *Hygieia*?

G. O. Gronhoyd, M.D., Santa Paula, Calif.

ANSWER.—A search of the literature has failed to reveal an authenticated case of threadworms (*Enterobius vermicularis*) in the bladder. However, the gravid female worms after their emergence from the anal canal frequently migrate extensively. In women they may enter the vagina and have been found in the uterus, fallopian tubes and the peritoneal cavity. It is suggested that the present treatment of the infant be supplemented with enemas every other night for a period of from three to four weeks. For this purpose saline enemas may be used, although the use of enemas consisting of a 1:2,000 solution of hexylresorcinol in water will give better results. Some children are particularly susceptible to the local irritating properties of hexylresorcinol. In such event the drug should be further diluted. It would be advisable to treat both parents and all other infected members of the family at the same time in order to reduce opportunities for reinfection. For this purpose the use of gentian violet medicinal N. N. R. is indicated.

At the present time the most effective treatment for the removal of pinworms (*Enterobius vermicularis*) consists in the administration of gentian violet medicinal N. N. R. Either enteric coated or water soluble coated tablets may be used. The dose of gentian violet for adults is 1 grain (64 mg.) three times a day before meals for eight days; the treatment is discontinued for a week and then repeated for an additional period of eight days. The dosage for children over 3 years of age is based on 0.01 Gm. a day for each year of apparent (not chronological) age. This daily dosage should be divided into three parts. The treatment is carried out in the same manner as for adults. About one third of cases treated with gentian violet show some reaction, consisting usually of nausea, vomiting, diarrhea, constipation and slight abdominal pain. If reactions ensue, it is advisable to reduce the dosage or withhold treatment for a day or two until the patient returns to normal. Gentian violet is contraindicated in moderate to severe heart, hepatic and renal disease, in gastro-enteritis, in pregnancy and in the presence of febrile or debilitating diseases. The patient should abstain from alcohol during the period of treatment. Persons suffering from ascariasis should be treated for the removal of ascarids before the administration of gentian violet.

In controlling pinworm infestation within the household, it is necessary to treat all infested members simultaneously in order to reduce opportunities for reinfection through eggs scattered around the house by nontreated individuals.

COLORS PAPER AND VISUAL DISABILITY

To the Editor:—I have been asked to make a report on the effect of various colored paper used in clerical work on the eyes of the workers. The state social welfare department uses papers of a distinct color for each department under its supervision. These include pink, green and yellow as well as white. The departments using the pink seem to have a greater incidence of visual disabilities than the others. Can you refer me to any recent literature on this problem?

William A. Pettit, M.D., Los Angeles.

ANSWER.—In all probability, the greater visual disabilities in the department using pink paper are coincidental rather than the result of the color of the papers employed. There has been considerable discussion on this topic off and on for the past twenty-five years and the majority view is epitomized in the various books by Matthew Luckiesh, of Nela Park. The first of these was published in 1915 and since then some seven of his publications have touched more or less on this topic. All of the volumes have been published by the Williams and Wilkins Company, of Baltimore.

PROBABLE ERYTHROCYANOSIS FRIGIDA

To the Editor:—A stenographer aged 22 has suffered for ten years with severe pain and occasional slight redness of the extensor side of the lower third of the lower part of the left leg. This severe pain appears every year as soon as cold weather sets in. It disappears with the beginning of warm weather. The pain is so severe at times that the girl is unable to work and loses considerable weight during the winter months. There is no itching. Cold in summer, such as cold water in bathing, does not produce the pain. Heat never relieves it. The right leg was never painful, even in the coldest weather. The girl has no other symptoms. Menstruation is regular. Results of physical examination were always negative. In the region of the pain at times a bluish red discoloration without induration could be seen; but these changes were practically the same in the right leg. The pulses of the popliteal, posterior tibial and dorsalis pedis arteries are of good quality in both legs. There are no changes of sensory functions, including the vibratory sense. The blood pressure in the two legs is equal and normal. Results of urine examination number 3,900,000 and white blood cells 10,000 with the following differential count: band forms 2, segmented cells 52, lymphocytes 35, monocytes 4, eosinophils 4; the bleeding time is two and one-half minutes, the coagulation time six and one-half minutes and the Wassermann reaction negative. The condition has been treated as frost bite for years without any success. The question arises Do we have to deal in this case with changes in the vascular system? The lack of objective signs and the fact that cold speak against this diagnosis. Please advise me as to diagnosis and treatment.

M.D., Connecticut.

ANSWER.—The condition described fits into the clinical picture of a malady less frequently seen here than on the European continent, namely erythrocyanosis frigida. In this lesion the skin looks much like that observed in the vasospastic types of poliomyelitis, and it is probable that the same etiologic factors, an insufficient venous return, an increase in the amount of fat in proportion to muscle and exposure to cold, are in operation in both diseases. As in poliomyelitis, the most severe cases show indurations and ulcerations and there gradually develops a great thickening of the subcutaneous tissues above the ankles. Abortive poliomyelitis and the presence of spina bifida occulta often associated with erythrocyanosis and pes cavus should be ruled out. This condition is most frequent in girls at about the time of puberty, and the milder forms become less troublesome with advancing years. Those with the painful and especially with the indurated or ulcerated type should be subjected to a lumbar sympathectomy. Late results of this operation are satisfactory.

MILD DIABETES

To the Editor:—A rather obese man about 45 years of age has had glycosuria for six years. Until about a year ago his fasting blood sugar was around 120 or less but now is 140. He has never taken any insulin but was and is able to remain sugar free (urine) by rather strict limitation of "starchy" foods with no sweets. Within the past year he has begun eating starchy foods occasionally and when he does so his urine shows 2 per cent sugar on the following forenoon. He was in apparently perfect health, felt good, lost some weight (but not too much) and had plenty of energy on his low carbohydrate diet. Of course he occasionally complained of some hunger. Now one of his nephews has finished medical school and advises him by all means to take insulin and increase the carbohydrate intake, while I have been advising him to stick to the low carbohydrate diet with no insulin unless diabetes becomes more severe. He is a druggist, is 5½ feet (168 cm.) tall and weighs from 190 to 195 pounds (about 87 Kg.). Which advice is right?

M.D., Louisiana.

ANSWER.—With such mild involvement the patient has a good prospect to live out the normal life expectancy, which at 45 years is twenty-five years for men. To do this and to avoid complications, he should take advantage of protamine zinc insulin once a day, which surely would allow him daily between 150 and 200 Gm. of carbohydrate, perhaps more, with sufficient protein, from 80 to 100 Gm., and fat sufficient for caloric needs. Gradual, slow reduction of weight on the diabetic condition but for its probably beneficial influence on the body in general, also to prevent harmful effects of obesity on the immediate welfare of the man, but one should plan also for the twenty-five years more to come.

PROSTIGMINE AND PITRESSIN WITH MORPHINE

To the Editor:—Are prostigmine methylsulfate and pitressin compatible with morphine and are they used simultaneously with morphine in postoperative cases such as cholecystectomies?

ANSWER.—Pitressin and prostigmine are used to relieve the bowel and bladder atony following abdominal section. The increase in tone of the muscular coat of the intestine is due to the stimulation of the plexus of Auerbach and structures peripheral to this. They seem to sensitize the motor autonomic system to normal stimuli. Morphine is used principally to relieve pain due to trauma. Its action on the peripheral endings of the autonomic nervous system is slight when given in therapeutic doses. (Opium, owing to its isoquinoline alkaloids, does have

a paralytic action on the peripheral endings of the autonomic nervous system.) Hence pitressin and prostigmine methylsulfate are compatible with morphine sulfate and may be used simultaneously in postoperative cases.

LIQUID SHAMPOO SOAP

To the Editor:—Will you please give me the ingredients of a good soap for shampooing the scalp. If no perfume is present, would it be possible to add something to give the shampoo mixture a faint perfume?

J. Wesley Bulmer, M.D., Glen Cove, N. Y.

ANSWER.—There are eight useful formulas for shampoos in the Recipe Book (American Pharmaceutical Association) including liquid and dry forms for dry and oily scalps. A representative "liquid shampoo soap" formula from this list is as follows:

Cocanut oil	66 Gm.
Cottonseed oil	78 cc.
Stearic acid	36 Gm.
Potassium hydroxide	42 Gm.
Potassium carbonate	9 Gm.
Alcohol	42 cc.
Purified talc	10 Gm.

Distilled water, a sufficient quantity to make 1,000 cc.

Melt the stearic acid in the oils heated to about 82 C. Add the alkalis dissolved in 100 cc. of distilled water and then the alcohol; heat until saponified. When cool, add sufficient distilled water to make the product measure 1,000 cc. Add the talc and filter.

Any perfume desired may be added. Rose water, bay rum odor, oil of bergamot, oil of lavender, oil of eucalyptus, oil of dwarf pine needles and oil of rose geranium are recommended.

FATAL HEMORRHAGE FROM UMBILICAL CORD

To the Editor:—Recently I had a case of hemorrhage from the umbilical cord which terminated fatally. The hemorrhage occurred six hours after delivery and ligation of the cord, in an apparently normal full term infant weighing 7 pounds (3.2 Kg.). The hemorrhage was excessive but had ceased on my arrival. As I lacked facilities for proper emergency treatment, the infant died in about an hour. Inspection of the stump and ligature showed a perfect ligation and the bleeding had occurred post the ligation at the severed end of the cord. At the beginning of pregnancy the mother had a 4 plus blood Wassermann reaction and during the middle trimester she took twelve injections of nearsphenamine and twelve injections of a bismuth compound, no blood tests being taken after this and no cord Wassermann test being made at the time of delivery. From what I am able to find in the literature, hemorrhage unless there is some blood dyscrasia present. Could this have been due to congenital syphilis? I might add that resuscitation of the infant was given me with regard to the probable cause of this misfortune will be greatly appreciated.

M.D., Texas.

ANSWER.—Blood dyscrasias, congenital syphilis and hemorrhagic disease of the newborn (prolonged prothrombin time) may cause hemorrhage from the umbilical cord, but the bleeding is more prone to occur at the point of ligation (superimposed trauma) than at the severed end of the cord. However, any of these blood conditions sufficiently severe to cause a fatal hemorrhage from the cord would also cause severe bleeding from other areas, especially the mouth, gastrointestinal tract, nose and vagina. Bleeding from hemorrhagic disease usually does not appear for about twenty-four hours after birth. In short, a rapid severe or fatal hemorrhage from the severed end of the umbilical cord occurring six hours after labor in a normal appearing infant, without other external evidence of a hemorrhagic diathesis, would lead one to believe that the ligature had slipped or loosened in some way.

PROGNOSIS IN INFECTIOUS MONONUCLEOSIS

To the Editor:—I am writing to ask if you have any information as to the prognosis of infectious mononucleosis. I had this condition in a mild form several months ago and my policy with my health insurance was put in force with a waiver for any diseases of the white corpuscles. I am unable to find reference in any of the literature in which the disease, when ended, was not cured. Are there any cases on record of such a disease after the cure?

M.D., Ohio.

ANSWER.—The immediate prognosis of infectious mononucleosis is almost always good. A few cases have been reported with accompanying severe hepatitis or nephritis. Concerning the late prognosis, a mild anemia is common. Easy fatigability is frequently present for several months. The blood usually shows a lymphocytosis which may last as long as a year. No more serious complications are known. The only justification for a different prognosis is the possibility of a mistaken diagnosis. Leukemia can be confused with mononucleosis, although the differentiation usually is easily made and reasonably certain.

Medical Examinations and Licensure

COMING EXAMINATIONS

NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 1, page 2240.

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 18-20. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ALASKA: Juneau, Sept. 3. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: *Basic Science.* Tucson, June 18. Sec., Dr. Robert L. Nugent, University of Arizona, Science Hall, Tucson. *Medical.* Phoenix, July 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: *Oral examination* (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, July 15. *Written examination.* San Francisco, June 24-27. Sec., Dr. Charles B. Pinkham, 1020 N St., Sacramento.

COLORADO: Denver, July 2-6. *Applications must be on file not later than June 17.* Sec., Dr. Harvey W. Snyder, 831 Republic Bldg., Denver.

CONNECTICUT: *Written.* Hartford, July 9-10. *Endorsement.* Hartford, July 23. Sec., Dr. Thomas P. Muddock, 147 W. Main St., Meriden. *Homeopathic.* Derby, July 9-10. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: *Examination.* Dover, July 9-11. *Reciprocity.* Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, Oct. 21-22. Sec., Dr. George C. Ruhlman, 203 District Bldg., Washington.

FLORIDA: Tampa, June 17-18. Sec., Dr. William M. Rowlett, Box 786, Tampa.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Capitol, Atlanta.

IDAHO: Boise, Oct. 1. Dir., Bureau of Occupational License, Mr. H. B. Whitteley, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 25-27. Superintendent of Registration, Mr. Lucien A. File, Springfield.

INDIANA: Indianapolis, June 18-20. Sec., Board of Medical Registration and Examination, Dr. J. W. Bowers, 301 State House, Indianapolis.

IOWA: *Basic Science.* Des Moines, July 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Kansas City, June 18-19. Sec., Board of Medical Registration and Examination, Dr. J. F. Hassig, 905 N. Seventh St., Kansas City.

MAINE: Augusta, July 2-3. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Medical.* Baltimore, June 18-21. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, June 18-19. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, July 9-11. Sec., Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: *Medical.* Ann Arbor and Detroit, June 12-14. Sec., Dr. J. Earl McIntyre, 202-4 Hollister Bldg., Lansing. *Basic Science.* Detroit, June 28-29. Pres., Dr. R. C. Houston, East Lansing.

MINNESOTA: Minneapolis, June 18-20. Sec., Dr. Julian F. Du Bois, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 26-27. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MONTANA: *Reciprocity.* Helena, Sept. 30. *Written.* Helena, Oct. 1-2. Sec., Dr. S. A. Cooney, 216 Power Bldg., Helena.

NEVADA: *Reciprocity with oral examination.* Aug. 5. Sec., Dr. Fred M. Anderson, 215 N. Carson St., Carson City.

NEW JERSEY: Trenton, June 18-19. Sec., Dr. Earl S. Hallinger, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 7-8. Sec., Dr. Le Grand Ward, 135 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, Albany.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 4½ S. Third St., Grand Forks.

OREGON: *Medical.* Portland, June 18-20. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland. *Basic Science.* July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: *Written.* Philadelphia and Pittsburgh, July 9-11. *Reside.* Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 358 Education Bldg., Harrisburg.

PUERTO RICO: San Juan, Sept. 3. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 10-11. Sec., Division of Examination, Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: *Medical.* Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. F. D. Cook, Pierre. *Basic Science.* *Written.* Yankton, June 7-8. *Endorsement.* Watertown, June 22. Sec., Dr. Gregg M. Evans, Yankton.

TENNESSEE: Knoxville, Memphis and Nashville, June 14-15. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: San Antonio, June 17-19. Sec., Dr. T. J. Crowe, 918-20 Mercantile Bldg., Dallas.

VERMONT: Burlington, June 11-13. Sec., Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 18-20. Sec., Dr. J. W. Preston, 3035 Franklin Rd., Roanoke.

WASHINGTON: *Basic Science.* Seattle, July 11-12. *Medical.* Seattle, July 15-17. Sec., Department of Licenses, Mr. Nelson N. Vaughn, Olympia.

WEST VIRGINIA: Huntington, July 1-3. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

WISCONSIN: Milwaukee, June 25-28. Sec., Dr. E. C. Murphy, 314 E. Grand Ave., Eau Claire.

Illinois January Examination

Mr. Lucien A. File, superintendent, Illinois Department of Registration and Education, reports the written examination (graduates of foreign schools given also a practical test) held at Chicago, Jan. 23-25, 1940. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Seventy-six candidates were examined, seventy-three of whom passed and three failed. Twenty-seven physicians were licensed by reciprocity and six physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Chicago Medical School.....	(1939) 78,	(1940) 82	
Loyola University School of Medicine.....	(1939) 77,		
78,* 87, (1940) 79, 80, 83			
Northwestern University Medical School	(1936) 78,		
(1939) 80, 82,* 83, 84, 86, 87*			
Rush Medical College.....	(1937) 85,		
(1938) 76,* 79, 79, 80, 81, 82, 83,* 84, 88*			
The School of Medicine of the Division of Biological Sciences	(1938) 81, 82		
University of Illinois College of Medicine.....	(1939) 77,		
80,* 80,* 80, 81, 81, 82, 83, 85, 87			
St. Louis University School of Medicine.....	(1937) 78		
Syracuse University College of Medicine.....	(1936) 83		
University of Cincinnati College of Medicine.....	(1939) 85		
Marquette University School of Medicine.....	(1940) 80		
Medizinische Fakultät der Universität Wien.....	(1923) 80,		
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University of Arkansas School of Medicine.....	(1927)		Arkansas
University of Southern California School of Medicine (1936)			California
Northwestern University Medical School.....	(1929)		Kansas,
(1931) Pennsylvania, (1934) Iowa, (1938) New Jersey			
The School of Medicine of the Division of Biological Sciences	(1937)		Iowa
State University of Iowa College of Medicine.....	(1936)*		Michigan
University of Kansas School of Medicine.....	(1927)*		Kansas
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University of Michigan Medical S.			Michigan
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St. Louis University School of Medicine.....	(1929)*		Missouri
Washington University School of Medicine.....	(1924)* (1936)*		Missouri
Creighton University School of Medicine.....	(1937)*		Nebraska
Ohio State University College of Medicine.....	(1936)		Ohio
Hahnemann Med. College and Hospital of Philadelphia (1927)*			Penna.
Vanderbilt University School of Medicine.....	(1936)		Tennessee
Baylor University College of Medicine.....	(1936)		Texas
Medical College of Virginia.....	(1934)		Virginia
Marquette University School of			Ohio
University of Wisconsin Medical			Missouri
University of Alberta Faculty of			Wisconsin
University of Western Ontario			W. Virginia
School	LICENSED BY ENDORSEMENT	Year Endorsement of	
.....	(1932) N. B. M. Ex.		
.....	(1937)* N. B. M. Ex.		
.....	(1938) N. B. M. Ex.		
.....	(1935) N. B. M. Ex.		
.....	(1936) N. B. M. Ex.		
.....	(1930) N. B. M. Ex.		

* Licenses have not been issued.

Book Notices

Physiological Chemistry: A Text-Book for Students. By Albert P. Mathews, Ph.D., Andrew Carnegie Professor of Biochemistry, The University of Cincinnati, Cincinnati. Sixth edition. Cloth. Price, \$8. Pp. 1,488 with 113 illustrations. Baltimore: William Wood & Company, 1939.

Many physicians learned their biochemistry with the aid of earlier editions. The book has been extensively revised and rearranged. Much of the older material that has been retained has been rewritten. The laboratory section is omitted from the present edition. This book is not a brief manual but rather a collection of essays on the chemistry of the body. Many new items appear in the present edition. There are, for example, brief discussions of the pyranose formula of alpha-dextrose, the newer conceptions of the chemistry of the disaccharides and polysaccharides, and there is an entire chapter on glycolysis presented as only a master could do it. This is followed by a chapter on the carbohydrate metabolism of muscle and other tissues, a discussion of the metabolism of malignant cells and a chapter on the carbohydrates of the nucleus. Reference is made in the latter chapter to the work of Anderson and his associates on the chemistry of the tubercle bacillus. Each chapter contains a select bibliography of important papers and reviews. The chapters on fats and other lipids are not perhaps as complete as the corresponding chapters on carbohydrates, but this is probably the fault of the subject. The discussion of the sterols includes mention of the chemistry of cholesterol and related sterols of plant and animal tissues, the bile acids and the sex hormones. Bile is discussed in the section on digestion in the intestine, an arrangement which is somewhat unfortunate because the material on bile acids is discussed under sterols. The chapter on the viscosity of blood and on clotting is so complicated with terminology as to raise a question about its helpfulness to the beginning student. On the whole, however, the book can be commended. It emphasizes the rapid progress that has been made in biochemistry within recent years, a development which, the author points out, has made the material aspects of medicine more nearly an exact science.

Health Is Wealth. By Paul de Kruif. Cloth. Price, \$2. Pp. 246. New York: Harcourt, Brace & Company, 1940.

Here, in a small volume, Paul de Kruif has collected essays from the *Country Gentleman*, in which he campaigns for great expenditures in the field of public health. He favors a national health program, as who does not? He tells how Detroit fought tuberculosis. And then he tells how in December 1937 he and Surgeon-General Parran prepared a two page memorandum entitled "The Essentials of a National Health Program." This apparently was given to the President by Basil O'Connor of the National Foundation for Infantile Paralysis.

Then comes the story of the so-called National Health Conference, in which de Kruif recognizes the attempt of this conference to destroy public confidence in the medical profession, and he says "The net result of the conference was that the American people had less faith in the army that alone could fight for its higher level of health."

Next comes an account of a conference with Harry Hopkins and the preparation of a memorandum for him which he was to send to the President. Apparently nothing ever came of that. In his own words, de Kruif feels that he participated in the folly of a "ride on the Washington merry-go-round."

This chapter serves as the introduction to the essays which have appeared in the *Country Gentleman*, proposing de Kruif's own national health program. They are Human Erosion and Human Conservation.

Then de Kruif heard that Senator Wagner was going to introduce the Wagner Health Bill, and he arranged for an audience with Senator Wagner. He presented the Senator with copies of these articles, but apparently their effect, he says, was nil. The Wagner Health Bill itself he calls a "comedy of errors."

Next come three more essays from the *Country Gentleman*, endeavoring to give de Kruif and that periodical leadership in the organization of public health for the American people.

Then de Kruif tells how he, with certain Michigan physicians, arranged a conference with Dr. Thomas Parran with the idea of trying to get the government to withdraw its law suit against the American Medical Association and how the Michigan physicians prepared with de Kruif and Parran a national health program which they would approve. On Dec. 13, 1939, de Kruif had an opportunity to take to the President his ideas and those of his associates regarding the national health program. Apparently the President told him on that date of his own plan for building hospital health centers in rural regions and that it was quite possible to embark on such a plan as de Kruif presented. As every one knows, the hospital bill, conceived by the President and modified through numerous hearings before the Senate Subcommittee on Labor and Education, unanimously passed the United States Senate on May 30.

One finds a de Kruif with somewhat a new point of view in his concluding paragraphs—a de Kruif who is for the medical profession. Thus he says "The people can take courage from the stir in the ranks of their physicians. They have gone on record as being ready to take their place as pioneers in a nationwide advance toward a higher level of life which the people are already demanding. This advance will not be dictated by spurious political promises or by any well intentioned but unreliable spirit of do-gooding. It will be guided by the power of medical science."

Treatment by Manipulation. By H. Jackson Burrows, M.D., F.R.C.S., Assistant Orthopedic Surgeon, St. Bartholomew's Hospital, London, and W. D. Coltart, M.B., F.R.C.S., Chief Assistant, Orthopedic Department, St. Bartholomew's Hospital. Published by "The Practitioner." Cloth. Price, 6s. Pp. 36, with 30 illustrations. London: Eyre & Spottiswoode, [n. d.].

This book is written by two orthopedic surgeons of considerable note and experience obviously in order to put manipulative surgery on a safe basis by means of proper selection of the cases and an understanding of the underlying principle, as is indicated in the preface to the book. It is called manipulative treatment rather than manipulative surgery and concerns itself with the passive movement of joints. To clarify the nomenclature the authors define sprain, acute or chronic, in reference to the joint only, while a strain is used in connection with particular components such as ligaments and, therefore, the sprain is the more general and the strain the more restricted term. It is gratifying to note that the principles of H. O. Thomas and his regard for the unsound joint is, at least by implication, recognized. From this point of view the short chapter on the selection of cases for manipulation is of particular interest. The authors consider the ideal case for manipulation the chronic sprain or strain resulting from chronic trauma with long continued mechanical strain, as for instance in scoliosis, lordosis and pes varus. Consequently they name inactive osteo-arthritis as one of the conditions suitable for manipulation, while tuberculous arthritis and any other form of arthritis, even though inactive, is definitely classed among the groups in which manipulation should not be applied. In only a few acute conditions is this treatment permissible. The method of manipulation and the details of technic are given special attention, particularly as far as the foot and ankle are concerned; also the treatment of the locked knee, the manipulation of the hip, especially in osteo-arthritic cases, and the manipulation of the spine. The methods are described in detail and in their different component manipulative steps. It is especially gratifying that the dangers of manipulation are emphasized, which lie first in the improper selection of the cases themselves and then from trauma by improper manipulation. The use of too much force is condemned, it being likely to lead to such complications as avulsion of the tibial tubercle, fracture of the upper end of the humerus, fracture of the metatarsal bones, or crush fracture of the vertebrae. Special caution is advocated in the treatment of osteoporosis from immobilization or from senility. The reader is warned in particular against such conditions as may lead to complications after manipulative maneuver. The book is well worth reading; it is written clearly and comprehensively and, above all things, it demonstrates the pathologic knowledge which is a welcome safeguard against the abuse of the method, which is so slow in being accepted by the medical profession having once fallen in disrepute by indiscriminate use.

Intelligence and Crime: A Study of Penitentiary and Reformatory Offenders. By Simon H. Tulchin. Cloth. Price, \$2. Pp. 166, with 13 illustrations. Chicago: University of Chicago Press, 1939.

Time was when the evils of mankind were explained, in large measure, by the boggy of feeble-mindedness. Poverty, unemployment and crime were directly related to intelligence defect. When systematic tests of intellectual capacity were applied in a routine way to some millions of American youths at the time of the draft for the World War, it was disconcerting to this theory to find that, according to the accepted standards at that time, one fourth of the young men accepted for the army were classifiable as feeble-minded. This caused enormous readjustments in the concepts of intelligence, feeble-mindedness and intelligence testing. It ought to have completely demolished the theory that crime was the result of stupidity, but it didn't.

Dr. Herman Adler, state criminologist of Illinois and director of the Institute for Juvenile Research, was anxious to substitute facts for theories regarding this question, although he himself was convinced that it was absurd to relate crime directly to feeble-mindedness. In one brief survey he showed that the intelligence capacity of the guards of one of the Illinois prisons was distinctly below that of the criminals that were guarded; but he sought to have the matter thoroughly investigated, and a number of psychologists—E. K. Wickman, John Metcalf and the author of this book—set to work and surveyed the population of the penal and correctional institutions in the state. Following the survey, during the seven years between 1920 and 1927, Tulchin examined more than 10,000 prisoners in three penal institutions in the state of Illinois.

Now, twelve years after the survey was completed, the results of these studies have been carefully tabulated, correlated and analyzed. In this small book, more data pertaining to the relation of intelligence to crime are assembled than in any other existing study. In addition, intelligence is considered in relation to nativity, race, recidivism, age, height, weight, educational record, marital status, employment status, and religion of the criminals.

As compared with the army experience, it is quite clear that feeble-mindedness is no more characteristic of criminals at large than it is of noncriminal youth. For example, 23.4 per cent of the population of the penitentiary were classifiable as inferior; but 25.9 per cent of the United States Army recruits were thus classifiable. Of the penitentiary population, 11.8 per cent was classifiable as superior; of the army, 10.6 per cent. In the reformatory, only 15 per cent of the men were rated as inferior and 13 per cent as superior. But while feeble-mindedness cannot be said to cause or be related directly to crime, Dr. Tulchin's figures do show a definite relationship between certain types of crime and the intelligence of the offender. Thus, those who commit sex crimes were regularly the most stupid, those guilty of fraud regularly the most intelligent.

Many other conclusions of a higher degree of differentiation are drawn by the author on the basis of his carefully studied statistics. The book is a fundamental contribution to fact finding in a field where guesswork and small sampling have long been the rule. The inspiration of Herman Adler and the indefatigability of Simon Tulchin deserve the gratitude of scientific workers in psychiatry, psychology and criminology for this unassuming but very significant study.

Ways to Community Health Education. By Ira T. Hilscock, Professor of Public Health, Yale University School of Medicine. With the collaboration of Mary P. Connolly, Marjorie Delavan, Raymond S. Patterson and William H. F. Warthen. Cloth. Price, \$3. Pp. 306, with illustrations. New York: Commonwealth Fund; London: Oxford University Press, 1939.

This book, an important contribution to the literature of health education, is an illustrated manual—illustrated with actual examples of successful devices used in health education by all sorts of agencies engaged in this activity. Medical societies, dental societies, health departments, professional societies and voluntary health agencies have all contributed to this volume. Carefully edited by five prominent health educators in various fields, liberally documented and replete with ideas, practical advice and examples of effective use of the several mediums and methods in health education, it should find a permanent place on the desk of every person interested in health education, in health administration or in any activity in which communication with the public is essential. The book deals first with the

mediums: radio, platform addresses, printed matter and displays. It then gives examples of effective use of these mediums in connection with diphtheria and smallpox control, infant welfare, sanitation, tuberculosis and syphilis control, and other applications to the usual community health program. The textual matter not only is packed with useful information but is distinctly readable.

The principal feature of the book is the illustrative material. Color plates, photographs, reduced facsimiles of printed matter and type samples are used effectively. They are gathered from health departments large and small, medical societies and academies of medicine, voluntary health agencies and governmental departments. They illustrate what can be done by showing what has been done and how it was done.

Heavy emphasis is placed throughout on the importance of the medical profession in health education, not only by frequently repeated advice about medical cooperation, but by citing examples and printing illustrations of how medical societies are regularly contributing to health education projects.

Evans' Recent Advances in Physiology. Revised by W. H. Newton, M.D., M.Sc., Reader in Physiology, University of London, University College, London. Sixth edition. Cloth. Price, \$5. Pp. 490, with 109 illustrations. Philadelphia: P. Blakiston's Son & Co., Inc., 1939.

This useful book is composed of twelve essays on the present status of various topics in physiology. As in the previous editions there are discussions of the sex hormones, the mechanism of oxygen supply to the fetus, the transport of carbon dioxide in the blood, the metabolism of cardiac muscle, the secretion of urine, the nervous control of micturition, chemical transmission at nerve endings, and the spinal reflex. New chapters have been included on some aspects of the physiology of bone, the Carrel-Lindbergh perfusion apparatus, certain problems of carbohydrate metabolism, and the cortical control of muscular movement. The portion of the book which has been carried over from the previous edition has been revised and rearranged. The book is well illustrated, each chapter contains a select bibliography, and there is a suitable index. The volume may be considered as an advanced textbook on certain phases of physiology. There are a host of unsolved problems in each chapter. The book will be of great value to the serious student of physiology.

A Textbook of Medicine. By Various Authors. Edited by J. J. Conybeare, M.C., D.M., F.R.C.P., Physician to Guy's Hospital, London. Fourth edition. Cloth. Price, \$6.75. Pp. 1,112, with 50 illustrations. Baltimore: William Wood & Company, 1939.

The 1939 edition offers to the student of medicine in essence an encyclopedia covering the entire field of medicine with extensive sections on neurology and psychiatry and a briefer section on dermatology. The work is popular in England, comparable to Osler or Cecil here, is reminiscent of Osler and McCrae in both organization and style and is written in an easily readable and understandable fashion. Noteworthy are the thorough manner in which each disease is discussed from the standpoint of symptomatology and diagnosis, the addition of pediatric aspects to discussions on the various infectious diseases, together with a chapter on gastrointestinal disorders of infancy, and a brief but adequate description of laboratory-clinical procedures when indicated as diagnostic measures. The section on neurology is probably sufficient to handle ordinary medical school needs in that subject, that on psychiatry is designed to give the student a familiarity with the subject. Common skin diseases are well handled in forty-eight pages on dermatology. Medicolegal aspects and instruction on proper insurance examinations are informatively discussed. Disadvantages lie in unfamiliar terminology as pertains to American students, and in the treatment of therapeutics. The names of proprietary preparations will not be recognized. Pharmaceutical nomenclature is confusing and dosages are entirely in the apothecary system. The most glaring fault lies in the unmodernized chapter on pneumonia, omitting entirely the all important strides that have been made in the last five years in the treatment of this condition. The old classification of three types and a fourth group is still adhered to. Serum is only briefly mentioned to be used only in types I and II. Sulfapyridine is not included. The important addition of sulfanilamide to our therapeutic armamentarium is almost entirely missed, being mentioned only briefly in the treatment of streptococcal septicemia and then in inadequate dosage. Old

traditional therapeutic measures, such as the use of whisky in pneumonia and frequent spinal drainages in epidemic meningitis, are still laid down perhaps too dogmatically as effective treatment adjuncts. We probably shall not agree with a course of treatment of early acquired syphilis that includes frequent interspersions of rest periods.

Injection Treatment of Hernia, Hydrocele, Ganglion, Hemorrhoids, Prostate Gland, Angioma, Varicocele, Varicose Veins, Bursae, and Joints. By Penn Riddle, B.S., M.D., F.A.C.S., Assistant Professor of Clinical and Operative Surgery, Baylor University College of Medicine, Dallas. Cloth. Price, \$5.50. Pp. 290, with 153 illustrations. Philadelphia & London: W. B. Saunders Company, 1940.

The increased popularity of the injection method of treatment is responsible for this authoritative work. Experience of many reliable workers showed that skepticism as to the safety and value of this method has been founded on theoretical misconceptions. On the other hand, the recent wave of enthusiasm over the injection method has created the impression that this treatment is not only a panacea for all types of hernias and varicose veins but also a simple office procedure which will save the patient time and money. The consensus at the present time is that the injection method has its field of usefulness, good results depending on an accurate differential diagnosis of the type of hernia, good judgment in selection of suitable cases, a thorough knowledge of the regional anatomy, proper technic of injection and, last but not least, a familiarity with fitting scientifically correct trusses. Too strong emphasis cannot be placed on the limitation of this method of treatment to men especially qualified in its use because there are definite inherent dangers in the procedure. The same remarks are applicable to the injection treatment of other conditions amenable to such therapy. Those wishing to employ this method are given in the book an excellent opportunity to acquaint themselves with the necessary details of treatment not only of hernias but also of varicose veins, hemorrhoids, hydrocele, varicocele, ganglion, angioma, bursae, joints and the prostate gland. The subject is covered completely and in a concise manner, the printing and illustrations are of a high quality. Only one omission has been noticed: among contraindications to injections of hernia, superficial cutaneous infections and the sliding hernia have not been mentioned. The book will undoubtedly receive a warm welcome from all interested in the subject.

Khmicheskaya priroda nervnogo vozbuzhdeniya v organizme cheloveka. [By] Prof. D. E. Alpern. [Ntture chimique de l'excitation nerveuse dans l'organisme de l'homme.] Paper. Price, 7 rubles. Pp. 232, with 59 illustrations. Kharkov: Edition de l'Institut de médecine expérimentale d'Ukraine, 1939.

The author accepts as proved the existence in the human organism of neurohumoral substances, chemical factories of nervous stimulation. Sympathin and vagus substance have been demonstrated in experiment by many investigators. These substances are demonstrable in normal states when the vegetative nervous system is stimulated or when one of its functions is interfered with. The oculocardiac phenomenon of Asehner offers a convincing illustration. The presence of the vagus substance can be demonstrated in the blood when this phenomenon is positive. The classic experiments of Loewi and the contributions of Dale and Cannon demonstrated that formation of chemical substances accompanies the reflex activity of the vegetative nervous system under normal conditions. Some of these substances may act as vasodilators or as vasoconstrictors and cause an imbalance in a given vascular area. In the course of a number of years of study of tissue metabolism the author and his co-workers at the Ukrainian Institute of Experimental Medicine demonstrated the presence of chemical agents in a number of diseases in the pathogenesis of which alterations in the function of the vegetative nervous system play a part, such as gastric ulcer, bronchial asthma, spastic colitis and spontaneous gangrene. The substances are formed not only in the peripheral tissues but in the central nervous system as well. Thus acetylcholine-like substance has been found in the cerebrospinal fluid of man in the presence of a positive oculocardiac reflex and in an epileptic syndrome. Chemical substances are liberated as a result of the activity of the nervous system. In gastric ulcer and in spastic colitis, increased liberation of acetylcholine takes place in the gastric or the intestinal wall. The author further maintains the existence of synergism between

the various chemical mediators and regulators. The existence of antagonistic mechanism can be likewise demonstrated. Such a counterregulator in the presence of accumulation of acetylcholine is cholinesterase, found in all the tissues of the human organism. The presence of acetylcholine can be demonstrated only after a preliminary introduction into the organism of physostigmine, which paralyzes the action of cholinesterase. The presence of the vagus substance stimulates the liberation of other antagonists such as epinephrine and sympathin. These investigations suggest the possibility of a new biologic method for the evaluation of the functional state of the vegetative nervous system. A consideration of the antagonistic factors permits a clearer understanding of the mechanism of a disease state and offers an opportunity for the study of the pathogenesis of the diseases of the vegetative nervous system. An extensive bibliography on this subject is appended as well as a summary in French.

The Therapeutics of Internal Diseases. Supervising Editor: George Blumer, M.A., M.D., David P. Smith Clinical Professor of Medicine, Yale University School of Medicine, New Haven. Associate Editor: Albert J. Sullivan, M.D., Chief Medical Officer, Gallinger Municipal Hospital, Washington, D. C. In Two Volumes. Cloth. Price, \$20 per set. Pp. 872, with 1,042 illustrations. New York & London: D. Appleton-Century Company, Inc., 1940.

The introduction to these volumes by Dr. George Blumer should be made required reading for every medical student. He makes it clear that the chief duty of the physician is to treat the patient, but he also makes clear that an accurate diagnosis should, wherever possible, precede treatment. He points out that the physician is treating not the disease or the diseased organ but the patient. "The plan of treatment should be as simple as possible," he says, "and it is well to put down in black and white directions as to the extent of rest or exercise, the character and amount of food and fluids, means of obtaining sleep, the regulation of the emunctories and, of course, the dosage and times of administration of medicines." Interesting also is his comment regarding proprietary remedies. He says:

If the practitioner of medicine is to develop therapeutic wisdom it is necessary that he should be aware of the pitfalls which beset the uncritical therapist and that he should develop a questioning attitude of mind. It is obvious from even a superficial perusal of medical literature that every promising new remedy goes through three stages. After its introduction it is used extensively and indiscriminately (stage of ballyhoo), then comes a stage of reaction during which numerous articles appear calling attention to its drawbacks and unpleasant side-effects, and finally a time comes when a true estimate of its value has been reached (stage of balance). In order to estimate the value of therapeutic agents it is necessary for the practitioner to adopt methods of appraisal and to view the whole subject with a scientific attitude of mind. Too often physicians form their estimation of the value of treatment on impressions, on the statements of their powered detail men from drug houses, or on ill digested opinions of their colleagues; too often they are practicing a generation after graduation on the therapeutic ideas they learned in medical school.

These two volumes are of the symposium type, the first volume taking up methods of therapy, including not only nutrition and dietetics but also special headings such as electricity, radiotherapy, occupational therapy, serum therapy, vaccines, bacteriophage and various methods of administering therapy. The second volume then proceeds with pharmacology and uses of drugs, toxicology, and finally the methods of treatment in the various infectious diseases.

The contributors have all been selected for their prominence in the fields which they discuss and for the fact that all of them have contributed at one time or another to the scientific literature in those fields. The work is well edited, systematic in presentation, and up to date in its bibliography, and altogether a most useful contribution.

Diagnostic Signs, Reflexes and Syndromes Standardized. By Wm. Egbert Robertson, M.D., F.A.C.P., Visiting Physician, Medical Division, Philadelphia General Hospital, Philadelphia, and Harold F. Robertson, B.S., M.D., F.A.C.P., Instructor in Medicine, University of Pennsylvania, Philadelphia. Fabrikoid. Price, \$3.50. Pp. 309. Philadelphia: F. A. Davis Company, 1939.

This is essentially a dictionary of all the usual signs and reflexes, many of them eponyms. It is a work of reference rather than one which would have any value for consecutive study. The work is obviously not all inclusive, and it is doubtful that any such book could be. The work should be of great aid to record librarians who must occasionally transfer eponymic designations into scientific nomenclature.

Biological Products. By Louis Gershenfeld, P.D., B.Sc., Ph.M., Professor of Bacteriology and Hygiene, and Director of the Bacteriological and Clinical Chemistry Laboratories at the Philadelphia College of Pharmacy and Science, Philadelphia. Cloth. Price, \$4. Pp. 236, with illustrations. New York: Romaine Plerson Publishers, Inc., 1939.

This volume contains various series on biologic products heretofore published in various periodicals, including the source, preparation and manufacture of products. Furthermore, it embodies the composition, therapeutic and prophylactic uses and methods of standardization. The book should prove useful to those working in such a field, particularly allied to public health.

Faiths That Healed. By Ralph H. Major, M.D. Cloth. Price, \$3. Pp. 290, with 30 illustrations. New York & London: D. Appleton-Century Company, Incorporated, 1940.

The relationship between faith and healing has given rise to various sects and beliefs associated with the curing of disease. Dr. Ralph Major has collected many of these and gives their histories and background. Here is an analysis of the growth of Christian science, of the background of Lourdes, the rise of witchcraft and many a similar subject. There are references to Mesmer, Quimby, Paracelsus and Zeileis. Strangely, the name of Coué does not appear in the index. Those who wish to trace the evolution of those who have exploited the relationship of body to mind will find in Dr. Major's book a well written account which will inspire thought and reflection.

Physicians' Fare. By C. G. Learoyd. Cloth. Price, \$2. Pp. 302. New York: Longmans, Green & Co.; London: Edward Arnold & Co., 1939.

This is a collection of distinctly medical stories by a British physician who is, at the same time, a competent writer of short stories. Some of these stories have appeared in *Blackwood's Magazine* and in the *Evening Standard*, but most of them have appeared during the last three years in the *St. Thomas's Hospital Gazette*. They vary from the macabre as "A Nice Quiet Locum-Tenency" to the mysterious and the humorous. Particularly interesting are those which are a satire on psychoanalysis.

The Waiting Room. By Helen Irving Oehler. Cloth. Price, \$1. Pp. 77. New York: Fortune's, Publishers, 1940.

The author—a nurse—has collected reminiscences, anecdotes and personal observations of medicine and its practice. She talks about her operation and her experiences. She wants a doctor for the future who will be a specialist with a general practitioner's soul, and she knows that she does not want socialized medicine.

The Medical Record Visiting List or Physicians' Diary for 1940. Revised. Cloth. Price, \$1.75 for 30 patients per week; \$2 for 60 patients per week; \$2.50 for 90 patients per week. No pagination. Baltimore: William Wood & Company, [n.d.].

For many years this has been a standard item whose annual rebirth merely needs recording. The present volume follows quite definitely the pattern of all previous issues, even so far as to continue the old lists of poisons, but fails to include innumerable new substances. Perhaps the book would be just as good with merely the blank pages suitable for records and the obstetric calendar and without the other obsolete contents.

The Medical Career and Other Papers. By Harvey Cushing. Cloth. Price, \$2.50. Pp. 302. Boston: Little, Brown & Company, 1940.

Some of the best papers of Harvey Cushing are here collected, divided into those which deal with medical education and the social aspects of medical service and those which are excellent biographies. The notes concerning William Thomas Councilman and the Mayo Brothers are of current interest. Most significant of all these essays is the one called "Medicine at the Crossroads," first published in *THE JOURNAL*. The entire collection is as well written, as inspiring, a group of essays as could well be accredited to any one physician.

The New York Hospital Handbook of Applied Nutrition. Cloth. Price, \$2. Pp. 136. New York, 1939.

This is a compilation of diets used in the New York Hospital and as such is a practical guide to routines which are common in many leading institutions.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Malpractice: Injury or Severance of Facial Nerve During Radical Mastoidectomy.—The defendant physician, an otologist or specialist in diseases of the ear, was employed by the plaintiff to treat a condition of her right ear. He found her suffering from a chronic infection of that ear and mastoiditis, an infection of the mastoid process of the temporal bone. To eradicate the infection the defendant, with the assistance of another otologist called in consultation by the patient, performed a radical mastoidectomy under ether anesthesia. After the operation a facial paralysis on the right side developed. While the patient was aware when she regained consciousness that her face felt "tight or drawn," she did not notice the paralysis until the third postoperative day when she looked into a mirror. The defendant continued to treat her until eight months later when he referred her to Dr. Semmes, a specialist in surgery of the nerves, and another otologist. The latter physicians performed an exploratory operation and found that the plaintiff's right facial nerve had been severed where it coursed through the facial canal in the region of the mastoid. The ear ceased to discharge pus three weeks later, and thereafter these two physicians performed a second operation and inserted a nerve graft. The facial paralysis persisted and the patient brought suit for malpractice against the defendant physician. From a judgment of the trial court directing a verdict in favor of the defendant, the plaintiff appealed to the court of appeals of Tennessee, western section.

The plaintiff contended that the defendant physician had performed the mastoidectomy in an unskillful and negligent manner, causing severance of the facial nerve and paralysis of the right side of her face; that he was negligent in not promptly disclosing to her the nature and cause of the paralysis and in assuring her that it was only a temporary condition, thus causing her to refrain from consulting other physicians until it was too late to correct the condition, and that because of his negligence the paralysis was rendered permanent. She testified that prior to the operation the defendant assured her that the procedure was comparatively simple and that the only risks involved were those of losing her hearing, which was already impaired, and the danger incident to taking a general anesthetic. According to her testimony, the defendant also assured her after the operation, on being asked concerning the facial paralysis, that the condition was temporary. On one occasion, she said, he informed her that it had been caused by iodine getting under the ether cone and on another occasion he told her that something was probably pressing against her facial nerve.

The medical testimony, said the court of appeals, was in accord that a radical mastoidectomy is a delicate operation requiring great skill and that the operation performed by the defendant had been skilfully done, except that the facial nerve, which is located in the immediate region of the mastoid, had been injured, probably cut. Dr. Semmes, the neurosurgeon, testified that paralysis of the facial nerve can be caused by swelling, inflammation or injury of the nerve. It was his opinion that in the instant case the facial nerve had probably been cut or so damaged by trauma as to cause it to slough. There was also unconflicting medical testimony that mastoiditis has a tendency to cause destruction of bone in the region of the mastoid process and that it was necessary for the defendant, in performing a radical mastoidectomy, to remove diseased bone in that region and to hollow out the entire mastoid region completely to relieve it of infection. Dr. Semmes testified, and his testimony was not controverted, that when the facial nerve is severed in the course of an operation there are two methods of repair available: (1) by direct suturing of the ends of the severed nerve if they can be approximated and (2) by grafting a section of nerve between the severed ends of the facial nerve when those ends cannot be brought together. He stated that at the time he performed the nerve graft there was a space of about one-half inch (1.25 cm.) between the severed ends of the

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facial nerve. In his opinion, because of the location of the nerve in the facial canal, very little retraction of the ends of the nerve would have resulted from the time of the mastoidectomy to the time he was called in on the case. In the instant case the facial nerve could not be repaired by direct suture, because the severed ends could not be approximated, and so a nerve graft was indicated. He further testified that when a nerve is severed it is better to suture it at once, if that is possible, but if a graft is indicated it is better to wait until the infection has disappeared entirely. It was shown that after an operation for mastoiditis infection usually persists for some considerable time. In the judgment of the court, the effect of Dr. Semmes's testimony was that, even if a repair of the severed nerve had been attempted promptly after the mastoidectomy, a nerve graft would have been the only method of repair that could have been used, and it would not have been good surgery to do the grafting until the infection had disappeared.

In view of this unconflicting medical testimony, the court could not agree with the plaintiff's contention that the facial nerve was not located within the region of the mastoid but was outside of the field of operation and that therefore the injury to the facial nerve in the course of the operation performed by the defendant brought the case within the doctrine of *res ipsa loquitur*. That doctrine, said the court, is applicable where the cause of action is based exclusively on some negligent act of a physician which could not ordinarily result from a careful or skilful treatment or operation. In the instant case, however, medical testimony showed that the facial nerve, where it was injured by the operation for mastoiditis and that in this type of the field of operation was located in the immediate region of operation there is always danger of injuring that nerve. Also, continued the court, uncontroverted expert medical testimony, which was properly admitted by the trial court and was not an invasion of the province of the jury, showed that it is possible for a surgeon in performing a radical mastoidectomy to injure or sever the facial nerve even when he performs that operation with the highest degree of care and skill.

It was the opinion of the court that the defendant's failure to use certain other instruments recognized by the medical profession did not raise, as the plaintiff contended, a presumption of negligence. Where it is shown, said the court, as the evidence in the instant case showed, that the instruments used in an operation are of a type approved for performing such an operation and the surgeon's technic is up to the recognized standard of efficiency and skill, failure to use other approved instruments does not constitute negligence.

In the judgment of the court, the trial court correctly held that expert medical testimony must be controlling in this case since the only questions involved were those of science. The court concluded, therefore, that the evidence in the case did not warrant the submission of the issues to the jury because any verdict by it would essentially have been based on pure speculation. Accordingly, the trial court's judgment of non-suit was affirmed.—*Calhoun v. Fraser (Tenn.)*, 126 S. W. (2d) 381.

Injury to Eye Due to Hair Dye.—The plaintiff sustained injury to one of her eyes following the application of a dye, apparently a liquid for dyeing hair, which had been placed on the market by the defendant laboratories. She and her husband sued the laboratories and from an adverse judgment the plaintiffs appealed to the supreme court of New York, appellate division.

It was actionable negligence, said the supreme court, for the defendants to put on the market a dangerous and poisonous dye. To recover it was not necessary that the plaintiffs prove that the defendants had actually manufactured and distributed the dye. The court held, therefore, that the trial court had erred when it refused to instruct the jury that, if the evidence established that the liquid was dangerous and poisonous and that injury to the plaintiff's eye followed contact with it, it might be inferred, without further evidence as to how the particular bottle happened to contain a dangerous and poisonous substance, that such a condition could not have arisen without fault on the part of the employees of the defendants. Of course, if prior to the application of the dye the plaintiff as a patron was apprised, which was not shown by the evidence, that the liquid was

dangerous and poisonous, then she would have assumed the risk involved. In the judgment of the court it was immaterial that the defendants had informed a so-called beautician that the dye contained a metallic salt and had also advised that patrons be instructed to keep their eyes closed during its application. The judgment of the trial court in favor of the defendant was therefore reversed and a new trial granted.—*Petzold et al. v. Ros Laboratories, Inc., et al. (N. Y.)*, 11 N. Y. S. (2d) 565.

Dental Practice Acts: "License" and "Certificate" Synonymous.—The defendant was convicted of practicing dentistry without a "license" in violation of the dental practice act of Alabama, which provides: "Any person who practices dentistry in this state without having received a certificate as therein provided shall be guilty of a misdemeanor." He appealed to the court of appeals of Alabama and contended that the trial court had erred in overruling his demurrer to its indictment which, as he claimed, improperly charged that he had engaged in the practice of dentistry without a "license" instead of charging that he had engaged in such activities without a "certificate." Since the dental practice act used the words "license" and "certificate" interchangeably, in the judgment of the court of appeals the charge that the defendant "did practice or engage in the business of dentistry without a license contrary to law" was sufficient to put the defendant on notice that he had engaged in the practice of dentistry without having complied with the requirements of the dental practice act. The court of appeals, therefore, affirmed the judgment of conviction. The defendant's petition for a writ of certiorari to review the decision of the court of appeals was denied by the Supreme Court of Alabama.—*Dye v. State (Ala.)*, 188 So. 74; 188 So. 75.

Society Proceedings

COMING MEETINGS

- American Medical Association, New York, June 10-14. Dr. Olin West, 535 N. Dearborn St., Chicago, Secretary.
- American Academy of Tuberculosis Physicians, New York, June 10-11. Dr. John Zarit, 1216 Republic Bldg., Denver, Secretary.
- American Association for the Study of Neoplastic Diseases, Baltimore, June 20-22. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Genito-Urinary Surgeons, Skypot, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American College of Chest Physicians, New York, June 8-10. Dr. Robert B. Homan Jr., P. O. Box 1069, El Paso, Texas, Secretary.
- American College of Radiology, New York, June 12. Mr. M. F. Cabal, 540 North Michigan Blvd., Chicago, Executive Secretary.
- American Gastro-Enterological Association, Atlantic City, N. J., June 10-11. Dr. Albert F. R. Andresen, 88 Sixth Ave., Brooklyn, N. Y., Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. Telinde, 11 East Chase St., Baltimore, Secretary.
- American Human Serum Association, New York, June 10. Dr. Maurice Hardgrove, 3321 North Maryland Ave., Milwaukee, Secretary.
- American Medical Women's Association, New York, June 9-10. Dr. Elizabeth Parker, 1835 Eye St., Washington, D. C., Secretary.
- American Physiotherapy Association, New York, June 23-28. Mrs. Elsie T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Proctologic Society, Richmond, Va., June 9-11. Dr. Curtis Rosser, 710 Medical Arts Bldg., Dallas, Texas, Secretary.
- American Radium Society, New York, June 10-11. Dr. Curtiss Costelow, 1407 South Hope St., Los Angeles, Secretary.
- American Rheumatism Association, New York, June 10-11. Dr. William E. Swain, 372 Marlborough St., Boston, Secretary.
- American Society for the Study of Allergy, New York, June 10-11. Dr. J. Harvey Black, 1405 Medical Arts Bldg., Dallas, Tex., Secretary.
- American Society of Clinical Pathologists, New York, June 6-10. Dr. Alfred S. Giordano, 531 N. Main St., South Bend, Ind., Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Association for Research in Ophthalmology, New York, June 11. Dr. Conrad Berens, 35 East 70th St., New York, Secretary.
- Association for the Study of Internal Secretions, New York, June 10-11. Dr. E. Kost Shelton, 921 Westwood Bldg., Los Angeles, Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna Holt, 25 Shattuck St., Boston, Secretary.
- Montana Medical Association of Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- West Virginia State Medical Association, White Sulphur Springs, June 29-31. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Cancer, New York

38:319-462 (March) 1940. Partial Index

- Induction of Tumors by Injected Methylcholanthrene in Mice of a Strain Especially Sensitive to Carcinogenic Agents Applied to Skin and Comparison with Some Other Strains. Georgiana M. Bonser, Leeds, England.—p. 319.
- Initiation and Growth of Tumors: Introduction: I. Effects of Under-feeding. A. Tannenbaum, Chicago.—p. 335.
- Tumors Produced in Hamsters by Benzpyrene. L. Halberstaedter, Jerusalem, Palestine.—p. 351.
- Epidermoid Carcinoma of Stomach. M. M. Scheffler and A. B. Falk, Chicago.—p. 359.
- Mixed Epithelioma of Back Arising from Daily Application of a Phenol and Ergot Ointment. J. B. Stevens and J. L. Callaway, Durham, N. C.—p. 364.
- Tumor Inhibition by Antitumor Nuclei Serum. C. A. Stoneburg and Frances L. Haven, Rochester, N. Y.—p. 377.
- Inactivation of Melanophore Hormone by Cancer Serum. J. H. Last and E. M. K. Gelling, Chicago.—p. 380.
- Estrous Cycle and Associated Phenomena in Strain of Rats Characterized by High Incidence of Mammary Tumors Together with Observations on Effects of Advancing Age on These Phenomena. J. M. Wolfe, Ethel Burack and A. W. Wright, Albany, N. Y.—p. 383.

American Journal of Diseases of Children, Chicago

59:693-930 (April) 1940

- *Tetanus in Childhood, with Special Reference to Treatment. H. F. Dietrich, Beverly Hills, Calif.—p. 693.
- Sulfapyridine in Treatment of Pneumonia in Infants and Children: Report on Fifty-Eight Treated Patients and Fifty-Six Controls. J. P. Scott, Philadelphia.—p. 711.
- Focal Epileptogenic Lesions of Birth and Infancy: Report of Eight Cases. W. Penfield and H. M. Keith, Montreal.—p. 718.
- *Obesity in Childhood: III. Physiologic and Psychologic Aspects of Food Intake of Obese Children. Hilde Bruch, New York.—p. 739.
- Hypo-Amino-Acemia in Children with Nephrotic Crises. L. E. Farr and D. A. MacFadyen, New York.—p. 782.
- *Giardiasis. P. V. Véghelyi, Budapest, Hungary.—p. 793.
- Hands and Wrists of the Diabetic Child: Roentgenologic Study. Isabel K. Bogan, Boston.—p. 805.
- Study of 240 Breast Fed and Artificially Fed Infants in the St. Louis Area: I. Comparison of Prophylactic Antirachitic Effects of 135 and 200 Unit Irradiated Evaporated Milks, 200 Unit Irradiated Fresh Milk and Human and Nonirradiated Evaporated Milk Fortified with 800 to 1,000 Units of Vitamin D as Viosterol. Edith C. Robinson, St. Louis.—p. 816.

Tetanus in Childhood.—Dietrich reviews twenty-eight cases of tetanus treated at the Children's Hospital from 1921 to 1939. Twelve of fifteen children treated between 1921 and 1932 died, but only one of the thirteen treated from 1933 to 1939 died. Most of the deaths in the first group and the only death in the second group occurred as a direct result of treatment. The improved rate of mortality in the second group was due to the more judicious use of serum and to the increasing dependence on sedatives. Refinement of serums in the last few years probably aided in reducing the number of severe reactions. A few of the children in the second group had severe reactions to serum but survived. One thousand five hundred units of antitoxin offers insufficient protection to the child with a compound fracture, but it apparently protects one with a minor wound. In the last eighteen years no child who received antitoxin for such a wound has been admitted to the hospital with tetanus. Most cases of tetanus seen in a children's hospital arise from wounds of such a trivial nature that the physician and often the mother are not consulted by the child. The further reduction of morbidity from tetanus must lie in the active immunization with tetanus toxoid of large groups of children. Every child who died had an extremely severe reaction immediately following serum intravenously or intrathecally. The immediate lethal factor was demonstrated in six necropsies to be medullary edema. Because

of the rapid reaction following intravenous or intrathecal administration of serum, it seems reasonable to assume that the edema was the result of some reaction to the serum. In four cases in which lumbar punctures were done before and from eight to twenty hours after the introduction of tetanus antitoxin into the subarachnoid space an acute inflammatory process was evident. The second group of thirteen cases emphasizes the relation between the route by which the serum is administered and the severity of reaction. The four patients given serum intrathecally and intravenously had severe reactions. They differed from the fatal ones only in a quantitative degree. Four patients were given intramuscular injections and they were the only ones not to show untoward reactions. Because time is an important factor, the intravenous is theoretically the ideal route for the administration of at least the first dose. It is better to assume the risk of slow effect and to give the antitoxin intramuscularly. One may give one dose of antitoxin and epinephrine intravenously and follow it by intramuscular administrations to maintain the concentration in the blood. An untried plan which may prove to be ideal, suggested by Hyland, is to obtain human tetanus antitoxin by immunizing donors with tetanus toxoid. One could give at first a single dose of human serum intravenously without fear of an untoward reaction. The concentration of antitoxin in the blood could be maintained safely by daily doses of orthodox tetanus antitoxin intramuscularly. Sedatives are of great value and are indicated before other therapeutic or diagnostic procedures are undertaken. The three important phases in the treatment are to spare the patient with adequate sedation and quiet surroundings, to provide a continuous but moderate supply of antitoxin to neutralize (preferably by intramuscular injection) any new toxin liberated and to supply reasonable amounts of fluid and nourishment during the first three to seven critical days. Secondal (sodium propylmethylcarbonylallylbarbiturate) for sedation has proved almost ideal in the three cases in which the author has used it.

Obesity in Childhood.—Bruch obtained information regarding the eating habits of 136 obese children from 2 to 13 years of age. The parents of 80 per cent of the children recognized that the food intake was larger than average. In the remaining 20 per cent it was described as normal or small, but the "normal" and "small" were not so much an estimate of the child's food intake as of the parents' exaggerated expectations as to what the children should eat. In all cases food intake was in better agreement with the rate of gain in weight than with the excess in weight. A preponderance of starchy food was shown. The emotional development of forty of the patients and their mothers was studied. The majority of the children had been exposed to prolonged overprotection. They exhibited signs of immature behavior not only in their eating habits but in other respects. For many obese children deprived of other outlets and satisfying contacts, the intake of food had gained an inordinate importance. Prolonged overprotection of 35 per cent of the children was partly explained by the fact that they were only children, and another 35 per cent were youngest children. In many instances a great difference in age or the death of another sibling accentuated the peculiarity of the family position. Increased desire for food frequently became manifest only after some upsetting experience: fear for the integrity of the body and of suppressed aggression. The maternal attitude was sometimes shaped by deprivation during her own childhood and rejection of the child. In all instances the offering and receiving of food represented an important emotional tic in the mother-child relation. Only 5.6 per cent of the patients came spontaneously for treatment of obesity. This group showed the best degree of cooperation. The poorest cooperation was shown by the children who came to the clinic with the definite expectation of receiving glandular injections for correction of the excess weight. A hypothesis is advanced that emotional experiences call into play functional disturbances of the hypothalamus which may be of importance in the large group of obese patients in whom no organic lesion can be detected.

Giardiasis.—Véghelyi studied the digestion and intestinal absorption of seventeen children infected with Giardia. Apart from the infection with Giardia lamblia no pathologic condition was found which could be held responsible for the symptoms, the anemia and the retarded development. Fat absorption was

markedly defective and only a small portion of the normal urinary pigment was excreted. The condition was attributed to the mechanical effect of the parasites covering the wall of the intestine and rendering it impermeable. The parasites almost cover the active surface of the intestine. The degree of impairment is probably proportional to the area of intestinal surface rendered inactive. If this surface is small, capacity for absorption may remain intact and no symptoms will arise. This may explain the fact that "healthy carriers" without symptoms are not rare. Infection may be severe enough to paralyze extensive intestinal surfaces and lead to a condition similar to atrophy from inanition. This state is further aggravated by the fact that, besides foodstuffs, other important substances, such as bile and vitamins, are not absorbed and by the fact that a great part of the available supply of calcium and magnesium is expended in binding the excess of free fatty acid. In this respect the condition resembles celiac disease. Twelve of the seventeen children were treated, but systematic reexaminations of only eight could be made. Acetarsone and acridine compounds were administered and no special diet. All eight were freed from the parasites, recovery taking place in from three and a half to seven weeks. Treatment was continued until cysts could no longer be detected in the stools after a provocative test with sodium sulfate on three consecutive days. Normal absorption was demonstrated after the treatment. Utilization of the fat returned to normal, the urinary pigment appeared in normal amounts, the anemia improved and body growth proceeded promptly. Improvement was gradual and was manifest on the fourth or fifth day after treatment was begun.

American J. Obstetrics and Gynecology, St. Louis

39:365-548 (March) 1940. Partial Index

- Reduction of Unwarranted Operative Incidence in Obstetrics. S. A. Cosgrove, Jersey City, N. J.—p. 365.
- *Clinical Aspects of Pelvic Endometriosis. F. L. Payne, Philadelphia.—p. 373.
- Asphyxia of the Fetus and the Newborn Infant: Study of Clinical and Pathologic Changes Produced by Intra-Uterine Asphyxia Due to Placenta Praevia and Consideration of Methods to Prevent or Minimize Fetal Anoxemia. S. H. Clifford, Boston.—p. 388.
- Control of Cancer in Women from the Medical Point of View, with Special Reference to Schiller Test and Colposcope. R. E. Watkins, Portland, Ore.—p. 394.
- Estrogen and Progesterone Metabolism in Pregnant Women, with Special Reference to Preeclamptic Toxemia and Effect of Hormone Administration. G. Van S. Smith and O. W. Smith, Brookline, Mass.—p. 405.
- Theca Cell Tumors of Ovary: Report of Ten Cases. M. B. Dockerty, Rochester, Minn.—p. 434.
- *Heart Disease and Pregnancy: Eight Years' Experience. J. Jensen, C. Wegner, E. H. Keys Jr. and H. R. Smith, St. Louis.—p. 443.
- Adrenal Cortex in Treatment of Nausea and Vomiting in Pregnancy. J. Kotz and M. S. Kaufman, Washington, D. C.—p. 449.
- Bilateral Ovarian Dermoids Complicating Pregnancy Treated by Bilateral Oophorectomy. C. J. Andrews, R. B. Nicholls and Aurelia Gill Nicholls, Norfolk, Va.—p. 453.
- *Studies on Preservation and Use for Transfusion of Placental Blood. C. S. Fine, R. L. Alter and A. Baptisti Jr., Baltimore.—p. 462.
- Histologic Effect of Progesterone on Hyperplastic Endometriums. G. E. Seegar, Baltimore.—p. 469.
- Use of Neutral Diet and Hydration in Treatment of Toxemias of Pregnancy. R. R. de Alvarez, Ann Arbor, Mich.—p. 476.
- Acute Gonococcal Perihepatitis: Report of Five Cases. W. M. Brunet, Chicago.—p. 481.
- Subcutaneous Implantation of Compressed Crystalline Theelin Pellets in Treatment of Menopausal Cases: Preliminary Report. H. G. Bennett Jr., G. Biskind and J. Mark, Baltimore.—p. 504.
- Treatment of Abnormal Menstrual Function with Estrogenic and Gonadotropic Hormones. A. Jacoby and M. G. DerBrucke, New York.—p. 509.
- Treatment of Cervicitis During Pregnancy. A. G. King and Roselyn Touff, Cincinnati.—p. 520.
- Use of Antiseptic Oil in Treatment of Vaginal and Cervical Infections. W. A. Reed, New Orleans.—p. 531.

Pelvic Endometriosis.—Slow growth, limited invasive properties and dependence on ovarian stimulation characterize endometriosis as a benign process despite its widespread dissemination. No other nonmalignant growth is so capable of such widespread involvement as is endometriosis. Payne found, in a study of 307 patients with this condition, 343 major lesions and innumerable minor lesions not considered in the analysis. The ovaries were the most frequent sites of endometriosis (64 per cent). Unilateral ovarian involvement constituted 36 per cent of the lesions and bilateral 28 per cent. Widespread infiltration of the culdesac constituted 25 per cent of the massive lesions. This was frequently associated with endometriosis

in other localizations, particularly the ovaries. The process extended into the rectovaginal septum producing a nodular infiltration resembling a malignant condition of the rectum. Rectal digital and proctoscopic examinations clarify the diagnosis, as endometriosis does not infiltrate the rectal mucous membrane as does a malignant growth. The fallopian tubes were moderately frequent sites of endometriosis, 3.2 per cent, and endometriomas of tubal stumps accounted for 1.1 per cent of them. Other areas of implantation were the external surface of the uterus, the broad ligament, the umbilicus, the cervix and a laparotomy scar, a bladder and an appendix. Any portion of the intestinal tract in or near the pelvic cavity may be involved. A characteristic feature of endometriosis is its association with other pelvic pathologic changes or disorders which overshadow both the symptoms and signs of the adenomas. Fifty-nine patients presented endometriosis alone, while the remaining 248 patients had a total of 367 complicating conditions. The following may be mentioned in order of frequency: uterine myomas, fibroids, perisalpingitis or perioophoritis, uterine retrodisplacement, cervical stenosis and ovarian neoplasms. Endometriosis is a disease of the menstrual life, with an incidence of approximately 80 per cent between the fourth and sixth decades. Its chief symptoms are those of local pain, alterations in the menstrual and reproductive processes and dysfunction of the contiguous organs. Treatment, routine observation, surgical intervention or irradiation are determined by the severity of symptoms, the patient's age and the operative removability of the major lesions. Conservatism, particularly in young patients, is justified by the results: From 90 to 95 per cent were completely or partially relieved of symptoms, 8 per cent required further treatment and 9 per cent had subsequent pregnancies.

Heart Disease and Pregnancy.—Jensen and his associates studied 108 obstetric patients with cardiovascular disease. The study aimed to determine to what extent care extended to this class of patient has affected maternal and infant death rates. Ninety-nine of the 108 women had rheumatic, seven congenital and two syphilitic heart disease. The patients with rheumatic heart disease presented various valvular lesions. Eight women died of heart disease. Of these cases only two belong to the regular antepartum series. There were no deaths among the patients with organic heart disease who followed instructions and received adequate antepartum care from the beginning of pregnancy. Heart disease has been an important cause of death in St. Louis Maternity Hospital. Of forty-four maternal deaths, six could be traced directly to valvular disease of the heart or its immediate complications. The six died within six months of delivery. The fact that no cardiac deaths occurred in properly managed pregnant women leads the authors to believe that while some cardiac patients should not become pregnant or should have their pregnancies interrupted if they do, the majority can be carried successfully to term if given adequate antepartum care. The treatment of these cases has been conducted along generally accepted lines.

Preservation and Use of Placental Blood.—Fine and his collaborators conclude from their studies that placental blood is suitable for transfusion in adults provided it can be collected sterilely and in sufficient quantities and can be satisfactorily preserved. Placental blood could apparently be collected and preserved sterilely, but the subsequent transfusions were accompanied by a high percentage of reactions. A comparative study of different preservative solutions suggested that 1.5 per cent of sodium citrate in physiologic solution of sodium chloride is the most desirable. Further bacteriologic studies, using special culture mediums, revealed that a high percentage of the collected blood was contaminated. Several modifications of the method of collection did not eliminate this contamination. Transfusion reactions could not be correlated with bacterial contamination or other detectable factors, such as hemolysis, type of preservative or time of storage. The authors believe that the biologic significance of placental blood is somewhat greater than that of adult blood. Theoretically its use for transfusion is attractive, but the technical difficulties encountered in collection and sterile preservation are sufficient to make its use impracticable under the present state of resources.

American Journal of Pathology, Boston

16:103-236 (March) 1940

- Cytologic Studies on Globi in Leprosy. E. V. Cowdry, St. Louis.—p. 103.
- Pathogenesis of Herpes Simplex Virus Infection in Chick Embryos. Katherine Anderson, Nashville, Tenn.—p. 137.
- Pathogenesis of Syphilitic Optic Atrophy: Preliminary Study with Report of Case. S. H. Epstein, Boston.—p. 157.
- Transmission of Lymphogranuloma Venereum to Guinea Pig. A. W. Grace and Florence H. Suskind, New York.—p. 169.
- *Intracystic Papilloma of Breast. O. Saphir and M. L. Parker, Chicago.—p. 189.
- Pathologic Anatomy of Cellophane Perinephritis. I. Graef, New York, and I. H. Page, Indianapolis.—p. 211.
- Histogenesis of Hepatic Cirrhosis in Chronic Food Selenosis. R. D. Lillie and M. I. Smith, Washington, D. C.—p. 223.
- Tuberculosis Involving Pulmonary Valve. H. R. Gilmore Jr., Washington, D. C.—p. 229.
- Silver Carbonate Staining Method for Oligodendrocytes and Microglia for Routine Use. J. C. McCarter, Montreal.—p. 233.

Intracystic Papilloma of Breast.—From the microscopic study of fifty-eight tumors of the breast grossly designated as papillomas, Saphir and Parker distinguished three types: the fibrous (pseudoglandular), the glandular and the transitional cell papilloma. Combinations of these types occur, particularly of the fibrous and the glandular types. The fibrous type consists of a stalk of connective tissue. Ramifications of the stalks may fuse with the production of pseudoglandular structures. This is the most common type of papilloma. Because of such pseudoglandular structures, this special subgroup may be designated as the pseudoglandular type. The glandular type is apparently formed by an extension of neighboring hyperplastic or adenomatous periductile acini into a duct or cyst; the epithelial cells of the duct enclose the invaginated acini. Both the fibrous and glandular types are benign tumors which do not recur. They often extend into the neighboring ducts but cannot be regarded as precancerous. The transitional cell type of papilloma morphologically is a benign tumor. It may recur after removal and some of the recurrent tumors may show morphologic evidence of a malignant change. It resembles the papilloma of the urinary bladder which, although morphologically benign, is sometimes classified as carcinoma grade 1 principally because of recurrences which prove to be malignant. Intracystic papillomas of the breast are as a rule multiple. The multiplicity of these transitional cell papillomas may be explained on the basis of multiplicity of origin or by implantations of tumor cells in neighboring ducts. Such implants do not necessarily indicate a malignant condition but may be compared to certain benign ovarian tumors which occasionally produce implantations on the peritoneal surface. Careful microscopic examination of all papillomas of the breast is important as far as the prognosis and the surgical procedure are concerned. For fibropapilloma and glandular papilloma, not only is excision of the tumor indicated but also inclusion of a circumscribed region of the breast surrounding the tumor, because often these tumors are multiple. There is no danger that carcinoma may develop on the basis of these lesions. Simple mastectomy is indicated for transitional cell papilloma, as these lesions, although microscopically benign, may possess an inert degree for malignant changes not recognizable by present staining methods. The prognosis in these cases after mastectomy seems good.

American Journal of Physiology, Baltimore

129:1-226 (April) 1940. Partial Index

- Body Build and Oxygen Metabolism at Rest and During Exercise. C. C. Seltzer, Cambridge, Mass.—p. 1.
- Duration of Insulin Action. P. O. Greeley, Los Angeles.—p. 17.
- Respiratory Adjustments to Oxygen Lack in Presence of Carbon Dioxide. D. B. Dill and N. Zamechek, Boston.—p. 47.
- Climatic Effects on Volume and Composition of Blood in Man. H. C. Bazett, F. W. Sunderman, J. Doupe and J. C. Scott, Philadelphia.—p. 69.
- Slow Adaptations in Heat Exchanges of Man to Changed Climatic Conditions. A. C. Burton, J. C. Scott, B. McGlone and H. C. Bazett, Philadelphia.—p. 84.
- Climatic Effects on Cardiac Output and Circulation in Man. J. C. Scott, H. C. Bazett and G. C. Mackie, Philadelphia.—p. 102.
- Comparison of Some Respiratory and Circulatory Reactions of Athletes and Nonathletes. E. C. Schneider and C. B. Crampton, Middletown, Conn.—p. 165.
- Injury to Oral Mucosa by Contact with Distilled Water. C. Dennis, Minneapolis.—p. 171.
- Masculinization of Female Rats Treated with Testosterone Propionate. K. E. Paschalis, H. Shay, J. Gershon-Cohen and S. S. Fels, Philadelphia.—p. 191.

American Journal of Psychiatry, New York

96:1009-1262 (March) 1940. Partial Index

- Psychiatric Approach to Treatment of Epilepsy. S. Cobb, Boston.—p. 1009.
- *Further Experiences with Use of Sodium Diphenyl Hydantoinate in Treatment of Convulsive Disorders. H. H. Merritt and T. J. Putnam, Boston.—p. 1023.
- Comparative Study of Effectiveness of Dilantin Sodium and Phorbital in a Group of Epileptics. J. Weinberg and H. H. Goldstein, Chicago.—p. 1029.
- Follow-Up Study of Nonluculent Psychotic Patients with Abnormalities in Spinal Fluid. P. Solomon, R. S. Schwab and L. Maletz, Boston.—p. 1035.
- Dementia Paralytica Accompanied by Manic-Depressive and Schizophrenic Psychoses: Significance of Their Coexistence. D. Rothschild, Foxborough, Mass.—p. 1043.
- Partial Bilateral Frontal Lobectomy: Psychopathologic Study: Case. I. C. Nichols and J. M. Hunt, Providence, R. I.—p. 1063.
- Psychoses with Myxedema. R. M. Crowley, Washington, D. C.—p. 1105.
- *Clinical Observations in Insulin Treatment of Schizophrenia: Preliminary Report. J. P. Frosig.—p. 1167.
- *Insulin Therapy of Schizophrenia in the Elgin State Hospital, with Special Reference to Relapses and Failures. Gert Heilbrunn and Ruth Sternlich, Elgin, Ill.—p. 1203.
- Neuropsychiatric Disorders Occurring in Cushing's Syndrome (Pituitary Basophilism). N. S. Schlezinger, Philadelphia, and W. A. Horwitz, New York.—p. 1213.
- Hereditary and Environmental Factors in Causation of Manic-Depressive Psychoses and Dementia Praecox. H. M. Pollock and B. Malzberg, Albany, N. Y.—p. 1227.

Dilantin Sodium for Convulsive Disorders.—Merritt and Putnam report the results with dilantin sodium of treating 267 patients refractory to other types of therapy. The patients have been treated for from two to twenty-two months. Their ages varied from 2 to 68 years. The duration of seizures varied from less than one year to more than forty years. One hundred and sixty-four of the patients were subject to only one type of attack at the time dilantin therapy was instituted: 124 had grand mal, twenty-one petit mal while nineteen had psychic equivalent or psychomotor attacks. The remaining 103 suffered from a combination of the three types. The results agree in general with those previously reported. Dilantin sodium was most effective in controlling "psychic equivalent" attacks (twelve of nineteen completely relieved), next most effective in preventing "grand mal" attacks (seventy-four of the 124 patients were completely relieved) and least effective in the "petit mal" attacks (six of twenty-one were completely relieved). Of twenty other patients with psychic equivalents associated with grand mal attacks twelve were completely relieved, of 103 with grand mal attacks associated with petit mal or psychic equivalents sixty-three were completely relieved, and such relief occurred in thirty-four of eighty-three patients with petit mal associated with grand mal seizures. The authors have not noticed that the therapeutic effectiveness of the drug becomes less with prolonged administration. They feel, however, that it is too early to draw any conclusions as to the possible development of tolerance to the therapeutic action of the drug as none of their patients have been under treatment for longer than two years. Dilantin sodium was generally well tolerated by most patients. There have been no fatalities and no very serious reactions. The most troublesome symptoms in regulating the dosage were those referable to the gastrointestinal and central nervous systems. Less frequent but more serious symptoms were those referable to the skin (toxic dermatitis) and gums (hyperplasia).

Insulin Treatment of Schizophrenia.—The quality and time of appearance of symptoms following 6,587 insulin treatments exhibited, according to Frostig, a definite and constant order of succession. The progression of symptoms is determined phylogenically and moves in an order inverse to the phylogenetic age of the layers. At first the activity of the cortex becomes suppressed, releasing the syndromes of the basal ganglia. As time progresses activity of the basal ganglia ceases, giving way to a release of the midbrain. Finally centers in the medulla oblongata are released. If the signs of this release last beyond the time at which pinpoint pupils are observed and the corneal reflex disappears, a protracted shock may be expected. Release of the medulla oblongata has to be, therefore, considered the biologic border of the therapeutic application of the insulin effect. The time of appearance and disappearance of symptoms depends on the size of the dose of insulin. Increase of the dose speeds up and decrease of the dose slows the rate of progression. Sensitization is another factor affecting the time of

appearance of the symptoms. The dose does not influence the sequence of the symptoms. In order to adapt the insulin effect on the brain to therapeutic purposes, the author proposed a standard time of five hours. The pharmacologic shock has to be managed so that medullary symptoms (tonic extensor spasms, parasympathetic syndrome) occur in the last half of the fifth hour. The shock seems to be therapeutically sufficient if the tonic phase lasts no less than one hour.

Insulin Therapy of Schizophrenia.—Heilbrunn and Sternlieb state that of 315 schizophrenic patients treated with insulin during the last three years 72 per cent of those with psychoses of less than seven months recovered and 10 per cent had social remissions. The respective figures for patients ill from seven to eighteen months are 35 and 20 per cent, while for patients ill more than eighteen months it is 10 per cent. A similar recovery rate was obtained among patients who had not responded to previous metrazol therapy. There were 15 per cent relapses in the first two groups. Simultaneous treatment with insulin and metrazol did not benefit patients who had failed to respond previously to either form of therapy. No fatalities, serious complications or spinal fractures were encountered. Epileptiform seizures occurring in 33 per cent of the patients had no therapeutic effect. Relapses were especially high among those patients who had had previous spontaneous remissions. The chance of another recovery decreases with each relapse. No definite criteria for a future relapse could be established from the previous patient's history or the symptomatology during the psychosis. Relapses occurred most frequently within six months of completion of treatment. A practical prognostic help was found in the patient's reaction to intravenous sodium amylal. Schizophrenic patients who show little or no response to sodium amylal are apt to fail to improve under insulin, whereas a large percentage of those with a lucid period following sodium amylal respond favorably.

American Journal of Tropical Medicine, Baltimore

20:169-344 (March) 1940. Partial Index

- Mechanism of Immunity to Metazoan Parasites. W. H. Taliaferro, Chicago.—p. 169.
Research on Helminth Diseases and Public Health Progress. W. W. Cort, Baltimore.—p. 183.
Complement Fixation Reaction for Amebiasis: Comparative Tests Performed by Two Laboratories. T. B. Magath and H. E. Meleney, with technical assistance of Margaret Hurn and Frances Jones, Nashville, Tenn.—p. 211.
"Short Term" Treatment of Malarial Infections with Quinine. C. F. Craig, San Antonio, Texas.—p. 239.
Some Characteristics of Artificially Induced Vivax Malaria. M. F. Boyd, Tallahassee, Fla.—p. 269.
Influence of Sporozoite Dosage in Vivax Malaria. M. F. Boyd, Tallahassee, Fla.—p. 279.
First Case of Tinea Imbricata Caused by Trichophyton Concentricum Blanchard 1896, Reported from Guatemala. H. Figueroa and N. F. Conant, Durham, N. C.—p. 287.
Human Rabies, with Special Reference to Virus Distribution and Titer. C. N. Leach and H. N. Johnson, Montgomery, Ala.—p. 335.

Annals of Internal Medicine, Lancaster, Pa.

13:1567-1790 (March) 1940

- *Specific Treatment of Pneumococcal Pneumonias: Analysis of Results of Serum Therapy and Chemotherapy at Boston City Hospital from July 1938 Through June 1939. M. Finland, W. C. Spring Jr. and F. C. Lowell, Boston.—p. 1567.
Relations Between Age and Weight and Dosage of Drugs. W. T. Dawson, Galveston, Texas.—p. 1594.
*Adenylic Acid in Human Nutrition. T. D. Spies, W. B. Bean and R. W. Vilter, Cincinnati.—p. 1616.
Variation of Blood Pressure with Skeletal Muscle Tension and Relaxation: II. The Heart Beat. E. Jacobson, Chicago.—p. 1619.
Limitations of Renal Function Determination. L. C. McGee and J. E. Martin Jr., Elkins, W. Va.—p. 1626.
Clinical Studies in Renal Disease: III. Acidosis in Chronic Glomerulonephritis. E. R. Marzullo, Brooklyn.—p. 1638.
Azorubin S Test of Liver Function: Evaluation, with Comparative Study of Bromsulphalein and Hippuric Acid Tests. D. H. Rosenberg and S. Soskin, Chicago.—p. 1644.
The Problem of Rheumatism and Arthritis: Review of American and English Literature for 1938 (Sixth Rheumatism Review). P. S. Hench, Rochester, Minn.; W. Bauer, Boston; M. H. Dawson, New York; F. Hall, Boston; W. P. Holbrook, Tucson, Ariz.; J. A. Key, St. Louis, and C. McEwen, New York.—p. 1655.

Specific Treatment of Pneumococcal Pneumonias.—Finland and his associates report the results obtained with serums and with drugs separately or in combination in the treatment of cases of pneumonia admitted to the Boston City

Hospital from July 1938 to July 1939. Of 211 patients given specific serum twenty-eight died, of 129 receiving serum and sulfapyridine thirty-one died, of the 225 treated with sulfapyridine forty died and of 472 treated without the serum or sulfapyridine 135 died. In the last group there were seventy-three cases in which the bacteriologic diagnosis was made after death. With these cases excluded the mortality amounted to 15.5 per cent. All the patients were more than 12 years of age. Both horse serum and rabbit serum were effective; the latter was more concentrated and was used in the poorer risks. Rabbit serum gave fewer allergic reactions than horse serum. Severe untoward reactions from either serum or sulfapyridine were infrequent. Sulfanilamide was not effective when given alone or as a supplement to serum therapy. The authors recommend the following treatment for pneumococcal pneumonia: 1. Blood culture and sputum typing should be done as soon as clinical diagnosis of pneumonia is made. 2. Sulfapyridine therapy is to be instituted at this time. 3. Specific serums are to be given to patients having the worst prognosis as soon as the type of pneumococcus is determined. 4. Serum should be given to all patients exhibiting no definite improvement after twenty-four to thirty-six hours of sulfapyridine therapy.

Adenylic Acid in Human Nutrition.—Spies and his co-workers find that in dietary vitamin deficiencies (pellagra, beriberi, riboflavin, vitamin A and vitamin B₆ deficiency) in addition to lack of the specific substance (nicotinic acid, thiamine hydrochloride, riboflavin, oleum percomorphum, carotene in oil or vitamin B₆) the diet is still deficient in another substance or substances when the specific one is supplied. Riboflavin, in addition to its specific effect on clinical riboflavin deficiency, has been shown to be beneficial to certain pellagrins in relapse, and since so many of these "specific" deficiencies are clinically interrelated it is possible that the same general biochemical system or systems may be disturbed. Adenylic acid is a constituent of the pyridine dinucleotides, coenzymes I and II, and is widely distributed in nature. It is intimately concerned with carbohydrate and protein metabolism. The authors investigated the properties of adenylic acid by administering it to eight normal persons and to fifteen persons with mixed vitamin deficiency disease. Some of the symptoms of mixed vitamin deficiency were relieved by adenylic acid. This compound, in some cases, may act in a manner similar to riboflavin in increasing the effectiveness of nicotinic acid in pellagrins in relapse. This not only gives further evidence of the multiple and mixed nature of dietary deficiency diseases in human beings but also suggests that they are the result of dysfunction of certain fundamentally related enzyme reactions. Because of the severe reactions produced by intravenous injections of all preparations of adenylic acid the authors do not recommend that the compound be administered to human beings until further studies have been made. Pellagrins in relapse were benefited by nicotinic acid and adenylic acid. Six patients with malnutrition with intense burning of the oral mucous membranes but with no diagnostic evidence of pellagra were relieved following treatment with adenylic acid alone.

Annals of Otol., Rhinol. and Laryngology, St. Louis

49:1-288 (March) 1940. Partial Index

- A Talk to House Officers and Pharyngomaxillary Approach to Tip of Temporal Bone. H. P. Mosher, Boston.—p. 3.
Methods for Producing Local Anesthesia for Tonsillectomy, Intranasal Operations and Operations on Paranasal Sinuses. H. I. Lillie, P. N. Pastore and L. H. Mousel, Rochester, Minn.—p. 38.
Chronic Progressive Deafness, with Special Reference to Estrogenic Substances: Further Contribution. G. Selfridge, San Francisco.—p. 52.
Significance of Hoarseness. W. Wells, Washington, D. C.—p. 99.
Carcinoma of Larynx. I. Frank and M. Lev, Chicago.—p. 111.
Experimental Hyperparathyroidism and Otosclerosis. E. C. Slaughter, Boston.—p. 130.
Tuberculous Ulcerogranuloma of Trachea and Bronchi. M. C. Myers, New York.—p. 177.
Etiology and Treatment of Seventh Nerve Paralysis. C. H. McCaskey, Indianapolis.—p. 199.
Report on Use of Urea in Suppurative Conditions About Ear. A. F. Seltzer, Philadelphia.—p. 219.
Carcinoma of External Auditory Canal, Middle Ear and Mastoid. R. J. Bowman, Beverly Hills, Calif.—p. 225.
New Labyrinthine Reaction: "The Waltzing Test." C. Hirsch, New York.—p. 232.
Type of Deafness Which Responds to Fistulization of Otic Capsule. S. Canfield, New Haven, Conn.—p. 248.

Archives of Internal Medicine, Chicago

65:661-872 (April) 1940

- Sudden Occlusion of Coronary Arteries Following Removal of Cardio-sensory Pathways: Experimental Study. C. G. McEachern, G. W. Manning and G. E. Hall, Toronto.—p. 661.
- Progress in Chemotherapy of Bacterial and Other Diseases, with Special Reference to Protosols, Sulfanilamide and Sulfapyridine. J. A. Kolmer, Philadelphia.—p. 671.
- Effect of Sulfanilamide on Fibrinolytic Activity of Hemolytic Streptococci. L. E. Hines, A. H. Hoover and E. Graff, Chicago.—p. 744.
- Blood Pressures in Aortic Coarctation: Study of Pulse Contours Taken by Direct Method. R. A. Woodbury, E. E. Murphy and W. F. Hamilton, Augusta, Ga.—p. 752.
- *Studies in Dystrophia Myotonica: II. Clinical Features and Treatment. J. J. Waring, A. Rabin and C. E. Walker Jr., Denver.—p. 763.
- Formation of Urine. J. G. Edwards, Buffalo.—p. 800.
- Effect of Sulfanilamide and Sulfapyridine on Hemoglobin Metabolism and Hepatic Function. C. J. Watson and W. W. Spink, with technical assistance of Ruth L. Everts, Minneapolis.—p. 825.
- Liver and Biliary Tract: Review for 1939. C. H. Greene, New York, and E. Farrell, Brooklyn.—p. 847.

Dystrophic Myotonia.—Waring and his associates state that contrary to general impression dystrophic myotonia is fairly common, is frequently unrecognized and is of great general medical interest. The thirteen cases they report were encountered between 1935 and 1938 by investigating families of patients previously recognized to have the disease. The degenerative changes are so widespread that the ophthalmologist, neurologist or internist may be called on to diagnose and to treat it. From the hereditary features of the disease it appears to be due to a dominant factor first manifested by no signs or by slight signs, notably the cataract. In families in which cataract occurs, its onset at an earlier age in succeeding generations is evidence of a defective gene. Finally there is an evolution of the complete syndrome of dystrophic myotonia in one generation. This is followed at an earlier age in succeeding generations, until in one generation its onset occurs before maturity, after which the disease ceases to appear in that family. It seems probable that the defective gene appears first in a family by mutation. Its onset is insidious and it progresses slowly. Degenerative signs are present for many years before they attract the patient's attention. Therefore the time of its onset is apt to be underestimated by many years. Cataract (twelve of the thirteen patients) is often the earliest evidence of the condition. The prolonged contraction characteristic of myotonia is easily distinguished from simulating conditions by the fact that the difficulty in relaxing the contracted muscle becomes less with each repetition of the contraction, myotonia is not painful, myotonia increases in degree (up to a limit) with increase in the force of contraction and the contractions which show myotonia are voluntarily produced. Contractions have been markedly decreased by the administration of quinine and to a less extent by epinephrine, and by calcium intravenously. The atrophy of myotonia is characterized by involvement of muscles of the face, the sternocleidomastoids, the muscles of the forearm, the quadriceps and the dorsiflexors of the foot. One or more of these muscles usually show the initial involvement, but when the condition is moderately advanced the entire group is more or less affected. Atrophy may affect muscles which have or have not been myotonic. The endocrine system shows evidences of generalized and often marked involvement. Testicular atrophy is frequent. Ovarian involvement is indicated by menstrual irregularities and infertility. The thyroid is often enlarged and of increased firmness. The basal metabolic rate is usually low. The conception of the pituitary as the master regulator of the endocrine system suggests primary pituitary hypofunction as the fundamental cause. Five patients with fairly advanced dystrophia myotonica had hypotension and four low blood pressures. The disease must be differentiated from congenital myotonia, various progressive muscular atrophies and dystrophies and other diseases producing presenile cataracts and endocrine disorders. Its hereditary nature is of the greatest diagnostic importance. Cataract associated with dystrophic myotonia is adequately treated by operation. Myotonia can be adequately treated by quinine. The latter does not, however, influence muscular weakness and atrophy, the source of the greatest disability. The greatest improvement in weakness and atrophy of one patient resulted from anterior pituitary extract, but the extract failed to produce any effect in two. Patients believed aminoacetic acid, epinephrine and epinephrine with pilo-

carpine to be beneficial, but objective signs of improvement were not evident. These drugs may have prevented a progression of the condition. Testosterone propionate was of questionable value.

Archives of Ophthalmology, Chicago

23:689-898 (April) 1940

- Concretions in Lacrimal Canaliculus Caused by Actinomyces. A. Hagedoorn, Amsterdam, Netherlands.—p. 689.
- Treatment of Ocular Syphilis. O. L. Levin and H. T. Behrman, New York.—p. 693.
- Iritis Due to Bacteria and Bacterial Toxins Associated with Dental Sepsis: Experimental Production in Laboratory Animals by Administration of These Toxins. A. A. Siniscal, Bloomfield, N. J.—p. 705.
- Acceptance of Weak Cylinders at Paradoxical Axes. B. Friedman, New York.—p. 720.
- Tumor of Third Ventricle with Resulting Chronic Internal Hydrocephalus: Clinical History Over Period of Seventeen Years. E. A. Shumway, Philadelphia.—p. 727.
- Primary Tumors of Optic Nerve (Phenomenon of Recklinghausen's Disease): Clinical and Pathologic Study with Report of Five Cases and Review of Literature. F. A. Davis, Madison, Wis.—p. 735.
- Impression Technic for Contact Glasses. A. E. Town, New York.—p. 822.
- Vortex-Shaped Dystrophy of Cornea. F. J. Bloch, New York.—p. 825.
- Postscript on Image Expansion by Foveal Clivus. G. L. Walls, Detroit.—p. 831.
- Operation on Ocular Muscles: Few Points in Operative Technic. M. Freiburger, New York.—p. 833.
- Some Basic Principles of Dark Adaptation. R. McDonald, Philadelphia.—p. 841.

Archives of Physical Therapy, Chicago

21:129-192 (March) 1940

- Effect of Natural Carbonated Baths on Rate and Amplitude of Pulse and Blood Pressure. S. Dorrance and W. S. McClellan, Saratoga Springs, N. Y.—p. 133.
- Spa Therapy in Rheumatic Diseases. E. M. Smith and C. H. Lutterloh, Hot Springs National Park, Ark.—p. 141.
- Physical Treatment of Arthritis. F. H. Krusen, Rochester, Minn.—p. 144.
- Combined Coagulation and Ionization of Cervical Erosions and Endocervicitis. D. Derow, New York.—p. 154.
- Psychologic Observations with Reducation in Case of Multiple Sclerosis. W. Marshall, Appleton, Wis.—p. 164.
- Newer Method of Physical Therapy in Complications of Diabetes. J. T. Beardwood Jr., Philadelphia.—p. 171.

California and Western Medicine, San Francisco

52:151-202 (April) 1940

- *Carcinoma to Spleen: Metastases. P. H. Guttman, Sacramento.—p. 156.
- Hard of Hearing Problems. F. L. Rogers, Long Beach.—p. 158.
- Diagnostic Value of Gastroscopy. A. L. Cohn, San Francisco.—p. 161.
- Sulfanilamide in Urologic Infections. B. Silver, Hollywood.—p. 166.
- Gonorrhea: Its Treatment by Artificial Fever and by Fever Therapy in Combination with Sulfanilamide. E. Belt and A. W. Folkenberg, Los Angeles.—p. 169.
- Clinical Aspect of Electrically Produced Gamma Rays: Three Important Units. A. Soiland, Los Angeles.—p. 172.
- Use of Papaverine Hydrochloride in Mesenteric Embolism. L. J. Madsen, Santa Monica.—p. 176.
- Granuloma Venereum Involving Rectum and Colon. W. Crane and H. S. Kimball, Oakland.—p. 177.

Metastasis from Breast Carcinoma to Spleen.—Guttman reports an instance of an unusually massive metastasis from a scirrhous carcinoma of the breast to the spleen in a woman of 55 who had noticed a lump in the breast three days prior to hospitalization. Trauma to the breast occurred one year ago and was followed by a swelling. The breast was amputated radically. The postoperative course was rapidly downhill. Eight months after operation there was fluid in the chest, and x-ray examination revealed a metastatic growth in the right lung. Despite extensive irradiation the patient died twenty-two months postoperatively. Metastases to numerous organs were of the gross nodular type. A small and a large nodule were present in the spleen. The metastasis was considered hematogenous in origin, as there was no evidence of involvement of the capsule or of extension along the efferent lymphatics. The mammary tumor was a rapidly growing, medullary carcinoma. Microscopic examination of the small nodule from the spleen showed a neoplasm, consisting of alveolar clusters and broad strands of epithelial cells compactly arranged. These were separated by a stroma consisting of highly vascular, loose connective tissue infiltrated in places with lymphocytes. The cells contained hyperchromatic nuclei which varied markedly in size.

Mitotic figures were numerous. The cytoplasm was basophilic and moderate in amount. Marked degenerative changes were present in the tumor cells in the center of the growth. There was a moderate lymphocytic and plasma cell infiltration at the periphery. The structure of the larger nodule was similar. No structural changes of the pulp of the spleen were to be seen. There were nodular metastases to the lungs, pleura, liver, mediastinum and kidneys.

Delaware State Medical Journal, Wilmington

12:39-56 (March) 1940

Ophthalmology and Its Relation to Industry. G. H. Cross, Chester, Pa.—p. 39.

Sacralization. H. G. Hadley, Washington, D. C.—p. 46.

Journal of Experimental Medicine, New York

71:423-584 (April) 1940

Growth Inhibition by Substances in Liver. A. M. Drucs, Y. Subbarow, Elizabeth B. Jackson and J. C. Aub, Boston.—p. 423.

Studies of Infectious Unit of Myxoma. R. F. Parker, Cleveland.—p. 439.

Cross Reactions of Egg Albumin Serums. K. Landsteiner and J. van der Scheer, New York.—p. 445.

Antibody Formation in Tuberculous Lesion at Site of Inoculation. J. O. Westwater, New York.—p. 455.

Cancers Deriving from Virus Papillomas of Wild Rabbits Under Natural Conditions. J. G. Kidd and P. Rous, New York.—p. 469.

Angiotensin Activator, Renin and Angiotensin Inhibitor and Mechanism of Angiotensin Tachyphylaxis in Normal, Hypertensive and Nephrectomized Animals. I. H. Page and O. M. Helmer, Indianapolis.—p. 495.

Type Specific Antigens, M and T, of Matt and Glossy Variants of Group A Hemolytic Streptococci. Rebecca C. Lancefield, New York.—p. 521.

Significance of M and T Antigens in Cross Reactions Between Certain Types of Group A Hemolytic Streptococci. Rebecca C. Lancefield, New York.—p. 539.

Group Specific A Substances: IV. Substance from Hog Stomach. K. Landsteiner and R. A. Harte, New York.—p. 551.

Protein Consumption and Restoration of Lost Organ Tissue. T. Addis and W. Lew, San Francisco.—p. 563.

Amino Acids and Hemoglobin Production in Anemia. G. H. Whipple and Frieda S. Rolschelt-Robbins, Rochester, N. Y.—p. 569.

Journal Industrial Hygiene & Toxicology, Baltimore

22:111-156 (April) 1940

Chronic Arsenic Poisoning Among Workers Employed in Cyanide Extraction of Gold: Report of Fourteen Cases. F. M. R. Bulmer, H. E. Rothwell, Toronto; S. S. Polack and D. W. Stewart, Sudbury, Ont.—p. 111.

*Health Hazards of Electric and Gas Welding: (1) Review of Literature; (2) Results of Examination of 286 Welders; (3) Preventive Measures. J. A. Britton and E. L. Walsh, Chicago.—p. 125.

Constant Dust Feeding Device for Laboratory Use. C. E. Williams and W. P. Battista, New York.—p. 152.

Hazards of Electric and Gas Welding.—Britton and Walsh examined 1,000 welders. Of these 286 had five or more (average nine) years of experience in electric or gas welding. Each roentgenogram of the chest was examined by three physicians. A sick benefit association offered a record of sickness disabilities requiring absence from work for one week or longer of 189 welders. In many instances, serial roentgenograms made over several years were available. No significant change or advance in abnormal markings was observed. The roentgenograms of 186 were normal. Increased hilar shadows or trunk and linear markings were present in forty-seven. These observations are nonspecific and would be found in any critical survey in about the same percentage under similar environmental conditions. Mottling or stippling of the pulmonary fields was present in twenty-four. In at least five of these it could be ascribed to other causes (dust). The remainder gave no history of exposure to dust. Excluding the five, records of sickness of sixteen men show that they have had no serious disability sickness in the last ten years and eight have had no complaints. One has slight albuminuria, two complain of cough and four have lost time within ten years (one in 1933 for four and one-half weeks because of pneumonia, one for two weeks in 1936 because of rheumatism, one for two weeks in 1935 and three weeks in 1936 because of an infected foot and one for forty-six weeks in 1936 because of bronchitis). There has been no recurrence of symptoms. One man lost two weeks because of grip in 1932 and now has a cough and chronic tuberculosis. The group with the most advanced lung changes has no more frequent or severe sickness than any group. Of the remainder

examined roentgenologically, fourteen men have signs of glaucosis, four large or multiple calcified foci, three rather extensive tuberculous changes, four widespread calcific deposits of a mycotic or disseminated healed tuberculous infection, two signs of emphysema and one each had a widened aorta, enlarged heart shadow, fractured rib and calcified pleura. These changes probably have no causal relationship to occupation. Only thirty-four of the 286 showed any abnormality or offered any physical complaint, not one of which was of a disabling degree. Twenty-two of the complaints were related to the respiratory system. The disabilities of the 189 welders were of the nature expected in any group of workers. One hundred and thirty-three have had no disability due to sickness lasting one week or more. In 1937 fourteen welders had sickness causing an absence from work for an average of 5.7 weeks each, while for the general employee group the average disability was 5.5 weeks each. The health of the welders compares favorably and perhaps is better than that of other groups in the same manufacturing unit. The hazards common to all types of welding include heat, light rays, electric shock and burns, irritating or poisonous gases, fumes or dust. When proper safeguards are taken for their control they should offer no serious menace to health.

Journal of Nervous and Mental Disease, New York

91:417-556 (April) 1940

Grasping—"Forced" and "Nonforced." I. Bieber, New York.—p. 417.

Electrocardiographic Studies After Treatment with Insulin and Metrazin Shock. I. R. Sonenthal and A. A. Low, Chicago.—p. 423.

Study of Hemato-Encephalic Barrier by Bromide Method, Before and After Insulin Therapy: Normal Range of Permeability: Correlation of Permeability Quotients with Psychomotor Activity. M. M. Keeler, New York.—p. 428.

Pneumothorax in Treatment of Pulmonary Tuberculosis in Psychiatric Patients. E. F. Dombrowski, F. S. Rankin and H. H. Goldstein, Chicago.—p. 449.

Myoclonus Epilepsy with Primary Optic Atrophy. M. P. Rosenblum and M. Herman, New York.—p. 456.

Behavior Problems in Children from Homes of Followers of Father Divine. Lauretta Bender and M. A. Spalding, New York.—p. 460.

Minnesota Medicine, St. Paul

23:221-310 (April) 1940

*Apical Lung Tumors or So-Called Superior Pulmonary Sulcus Tumors.

H. J. Moersch, H. C. Hinshaw and I. H. Wilson, Rochester.—p. 221.

Early Gastrointestinal Carcinoma. G. Earl, St. Paul.—p. 226.

Recurrent Myxosarcoma of Right Inguinal Region: Report of Case.

L. K. Buzzelle and R. B. Tudor, Minneapolis.—p. 230.

Adenomyomas. W. G. Benjamin, Pipestone.—p. 231.

Greetings from the Alumnus. O. J. Hagen, Moorhead.—p. 236.

Vertigo. W. T. Wenner, St. Cloud.—p. 241.

Sympathetic Neuroblastoma: Report of Case. O. B. Fesenmaier, New Ulm.—p. 244.

Apical Lung Tumors.—Moersch and his associates state that among the admissions to the Mayo Clinic from January 1928 to Dec. 31, 1937, there were only thirteen cases of superior pulmonary sulcus tumor with all of the essential features of the disease present. Four other cases had all the features but the Horner's syndrome. These four cases tend to disprove the contention that the tumor is a distinct clinical entity. Thirteen of the patients were men and four were women. The youngest was 19 years of age and the oldest 72; the majority were middle aged. The left apex was involved in twelve cases. Intermittent pain, worse at night, was the earliest and most annoying symptom. It usually began near the shoulder and tended to spread down the arm and round the scapula on the homolateral side. Before Horner's syndrome develops the condition is often mistaken for "rheumatism," neuritis or even angina and, when taken for relief is not an uncommon event. The condition is rapidly progressive and disabling. Careful x-ray examination of the thorax is of utmost diagnostic importance. Hemoptysis is infrequent. Tissue for microscopic examination was obtained from nine of the thirteen cases and from three of the four cases in which Horner's syndrome was absent. Necropsy was performed on two from each group and all observations were regarded as those of primary carcinoma of the bronchus with metastases to other organs. Three of the thirteen typical cases were explored surgically and in each instance the tumor was inoperable because of invasion of the vertebrae or ribs. Tumor tissue from two of the three cases was reported as adenocarcinoma, grade 1. Biopsy of the supraclavicular lymph nodes overlying the apical

tumor from four of the typical cases and from one of the atypical cases revealed that four were cases of adenocarcinoma and one a chondroma. The prognosis of an apical pulmonary tumor is grave. The majority of such patients under the authors' observation were dead within six months of the initial examination. No successful form of treatment has been found. Occasionally, temporary relief was obtained from roentgen therapy. The authors conclude that the so-called superior pulmonary sulcus tumor is not a distinct clinical entity but a lesion situated in the apex of the lung, giving rise to a characteristic train of symptoms designated by Pancoast as the superior pulmonary sulcus syndrome. The tumor that most commonly produces this symptom complex is a primary carcinoma of the bronchus.

Missouri State Medical Assn. Journal, St. Louis 37:135-188 (April) 1940

- Leprosy. G. B. Tuttle, St. Louis.—p. 135.
*Sulfanilamide in Treatment of Scarlet Fever. G. S. Bozalis and H. L. Barnett, St. Louis.—p. 137.
Neurologic Anatomy and Physiology of Bladder and Its Clinical Application in Urology. D. K. Rose, St. Louis.—p. 142.
Maternal Mortality in Missouri. H. F. Parker and Madge Proctor, Jefferson City.—p. 152.
Hyperemesis Gravidarum: Endocrine Approach to Early Treatment. P. F. Fletcher, St. Louis.—p. 155.
Tuberculosis and Pregnancy. S. H. Snider, Kansas City.—p. 157.
Pregnancy and Diabetes. G. M. Powell, Springfield.—p. 159.
Hidden Liabilities in Maternal Welfare. G. F. Pendleton, Kansas City.—p. 161.
Obstetric Progress: Abruptio Placentae. C. F. Marshall, Kansas City.—p. 164.

Sulfanilamide in Scarlet Fever.—Bozalis and Barnett treated 300 cases of scarlet fever with sulfanilamide administered orally in a dose of 0.2 Gm. per kilogram of body weight (1½ grains per pound) for the first twenty-four hours, in six divided doses, decreased one half after twenty-four hours for the remainder of the period of drug treatment. Children weighing over 88 pounds (40 Kg.) and adults received 8 Gm. in the first twenty-four hours in six doses, after which they received 4 Gm. daily in six doses. Blood concentrations between 5 and 10 mg. per hundred cubic centimeters were thus obtained within a few hours and maintained throughout the course of treatment. The drug was continued after the temperature had been normal for two days and when there was a definite improvement in the appearance of the throat. There was an apparent reduction in the number of septic complications which might have been further reduced had the drug been continued longer. When complications did occur, a prompt response to further sulfanilamide treatment took place. The authors performed tonsilectomies on forty of convalescing patients with no reactions despite the fact that these were carried out during the winter and spring months and in the presence of active infections. This was ascribed to administration of sulfanilamide before and after the operation. Scarlet fever antitoxin in combination with sulfanilamide was given to thirty-nine patients with extreme degrees of toxicity. There were no deaths.

New England Journal of Medicine, Boston

222:563-610 (April 4) 1940

- Oxygen in Treatment of Lobar Pneumonia. A. M. Burgess, Providence, R. I.—p. 563.
*Atypical Bronchopneumonia of Unknown Etiology, Possibly Due to Filtrable Virus. M. E. Murray Jr., Cambridge, Mass.—p. 565.
Sulfanilamide Therapy in Chronic Undermining Streptococcal Ulcer: Report of Case. K. B. Lawrence, Boston.—p. 573.
Clinical Significance of Oral Lesions in Acute Leukemia. W. C. Moloney, Boston.—p. 577.
One Stage Lobectomy in Bronchiectasis. M. D. Tyson, Hanover, N. H.—p. 579.
Recent Advances in Biochemistry and Therapeutics of Potassium Salts. J. H. Talbot and R. S. Schwab, Boston.—p. 585.

Atypical Bronchopneumonia.—Murray during the last four years observed a mild form of pneumonia among the students at Harvard University. It was especially prevalent during the academic year 1938-1939, eighty-one cases having been cared for in the Stillman Infirmary and thirty-nine cases reported by family physicians. The records of 132 infirmary patients were studied. The disease began as a simple acute infection with minimal respiratory symptoms but usually with the early appearance of cough and later some degree of expectoration. The chill, chest pain, bloody sputum and prostration

of pneumococcal lobar pneumonia were as a rule absent. A pulmonary lesion, most often beginning at the hilus and advancing outward toward the lateral chest wall or the diaphragm, was demonstrable early in the illness by x-ray examination. Physical signs were minimal. Mild dullness to percussion and some diminution in breath sounds, followed by the appearance of coarse rales on the fifth, sixth or seventh day, were the usual observations. The course was mild, with return of the temperature to normal in from five to seven days. The pulse was only moderately accelerated, rarely rising above 90 or 100. The respiratory rate was almost invariably normal. Severe prostration was present in a few cases, but tympanites, delirium and other evidences of critical illness were not seen. The leukocyte count was either normal or slightly elevated, with from 70 to 75 per cent polymorphonuclear cells. In about one third of the cases there was a rise in the leukocytes during the latter part of the illness, without the appearance of complications to explain it. Complications were few and mild. The majority of sputum specimens examined contained no pneumococci; somewhat less than half showed a pneumococcus, usually one of the higher types. Sputum cultures yielded a variety of organisms, and a small number of blood cultures were all negative. Attempts to isolate a filtrable virus were unsuccessful. A short convalescence was the rule. No deaths occurred. The author believes that this infection represents a separate disease entity but does not believe that it is a new disease. It does not appear to be related to the common cold or to epidemic influenza. Epidemiologic observations indicate that it is contagious and suggest an incubation period of from seven to eleven days. Bacteriologic studies fail to incriminate any of the known bacteria as etiologic factors. This negative evidence, plus certain characteristics of the clinical picture, suggests that this is a virus disease. So far, however, no positive evidence in favor of this impression has been obtained.

222:611-656 (April 11) 1940

- *Acute Mechanical Obstruction of Small Bowel: Its Diagnosis and Treatment. L. S. McKittrick and S. P. Sarris, Boston.—p. 611.
Prevention of Diabetes Mellitus: Clinical Lecture. R. Fitz, Boston.—p. 623.
*Engorgement of Pulmonary Veins by Extension of Cardiac Enlargement Posteriorly: Relation to Postural Dyspnea in Cardiac Patients. W. D. Reid, Portsmouth, N. H.—p. 627.
Gastro-Enterology. C. M. Jones, Boston.—p. 634.

Acute Mechanical Obstruction of Small Bowel.—This is the fourth report on patients with acute mechanical obstruction of the small bowel operated on at the Massachusetts General Hospital and is based on 136 cases treated during the last fifteen years. McKittrick and Sarris emphasize the following principles in the management of these cases: The degree of dehydration and chemical imbalance must be evaluated and methods instituted for relief. Blood transfusions may be indicated for patients with strangulation obstruction. A double lumen Miller-Abbot or similar tube should be passed immediately, to be left in whether or not operation is undertaken. Immediate operation is indicated in any case examined within twenty-four hours after the onset of symptoms. Early operation should be done on a patient seen in the second twenty-four hours. Delayed or nonoperative treatment is indicated in the absence of definite signs of strangulation obstruction in any patient seen later than forty-eight hours after the onset of symptoms, or in any patient over 60 years of age, unless the obstruction is of less than twenty-four hours' duration and the patient is in good condition, without distention. If conservative treatment is instituted, the following routine should be followed: serial abdominal films at from twelve to twenty-four hour intervals, in order to follow the progress of the tube and the degree of distention; bi-daily white cell counts, and frequent abdominal examination, at least every four or six hours, with the examiner particularly alert for the development of local tenderness or of rebound tenderness. If decompression cannot be accomplished by intubation, and laparotomy under general or spinal anesthesia seems too hazardous, the distended bowel should be drained by inserting a catheter in a distended loop under procaine anesthesia. No attempt at exploration should be made at this time. If decompression is successfully accomplished and normal bowel action is reestablished, an operation of election at the same hospital admission for a good risk patient should be

given serious consideration. The authors feel that since the obstructing mechanism is probably still present, and since 26 per cent of their patients have given a history of previous attacks, the risk of lysis of the point of obstruction is less than that of future obstruction, unless the patient is assured of competent surgical care within the first twenty-four hours of any subsequent attack.

Engorgement of Pulmonary Veins.—Rcid presents reasons in support of the conception that compression of the pulmonary veins and of the lungs by extension of cardiac enlargement posteriorly is a more valid explanation of engorgement of these vessels and of dyspnea of cardiac origin than is the formerly accepted theory. There exist similarities to what is known as the postmediastinal syndrome in which dyspnea is a prominent symptom. Patients with heart disease were closely questioned regarding the occurrence of dyspnea while they were in bed. Their answers were correlated with the fluoroscopic evidence of the backward extension of their hearts. Patients with proved disease of the heart and usually with some degree of cardiac insufficiency, but whose dyspnea was unrelated to posture, served as controls. There were fifty-three patients in all—seventeen with postural dyspnea and thirty-six without. The former were all found to have marked extension of the heart backward into the retrocardiac space, whereas but one of the control cases showed marked encroachment on the retrocardiac space. The author does not assert that these prove that engorgement of the pulmonary veins is caused by mechanical pressure exerted on their walls by backward extension of an enlarged heart. It seems reasonable to suggest that physicians should not limit their thoughts to the heart in cardiac patients with dyspnea. Some therapeutic possibilities come to mind. It might be advisable to pay more attention to the posture of the patient. There are patients in whom elevation on a bed rest gives but partial relief to dyspnea but who will obtain greater ease in a forward leaning posture. The author adjusted a hospital bed table in front of such patients and found that it lessened their dyspnea. Crowding of the available space in the thorax by accumulations of fluid is an evident reason for increased dyspnea. An increased application of and a readiness to repeat thoracentesis have increased the comfort of patients. It seems reasonable to suggest the performance of the Brauer operation.

New York State Journal of Medicine, New York

40:461-614 (April 1) 1940

- Value of Tuberculin Skin Tests in Pediatric Practice. P. W. Beaven, Rochester.—p. 467.
Diet and Deficiency Disease in Clinical Medicine. T. T. Mackie, New York.—p. 475.
Bronchial Asthma: New Use for an Old Remedy. G. S. King, Bay Shore.—p. 485.
Sulfapyridine in Treatment of Pneumonia. R. L. Cecil, E. A. Lawrence and E. Tolstoi, New York.—p. 488.
Urologic Complications in Gynecology. A. J. Murphy, New York.—p. 495.
*Spontaneous Pneumothorax: Industrial Experience with Twenty-Five Cases. J. L. Norris, Rochester.—p. 504.
Institutional Convalescent Care for Surgical Patients. I. S. Ravdin, Philadelphia.—p. 507.
Convalescent Care: Perpetual Challenge. E. H. L. Corwin, New York.—p. 513.
Clinical Aspects of Syphilis Control. W. A. Brumfield Jr., Albany.—p. 519.
Subacute Bacterial Endocarditis Case: New Method of Treatment. K. Lippmann, New York.—p. 524.
Treatment of Corporal Carcinoma with Radium. H. Strauss, Brooklyn.—p. 529.

Spontaneous Pneumothorax.—According to Norris, spontaneous pneumothorax occurring in active, symptom-free persons is benign and but rarely associated with tuberculosis. He reports twenty-five cases seen at Kodak Park during the last six years. He believes that the condition should be designated as benign spontaneous pneumothorax. It occurs, as a rule, in persons between the ages of 19 and 35 years. Two thirds of his patients were underweight. All except one were males. Spontaneous pneumothorax should be suspected in the presence of acute pain in the chest, upper part of the abdomen, or back. The acute onset at times may suggest acute cholelithiasis, renal calculus, angina pectoris or perforation of a peptic ulcer. Spontaneous pneumothorax is seldom associated with any usual physical exertion and is never symptom free. Diagnosis may

be made from physical signs, but the condition can be ruled out only by roentgenograms taken in forced expiration. This is the only way in which small collections of air can be demonstrated. Fluoroscopy is of little use except in marked cases. Usually the spontaneous pneumothorax requires no treatment beyond bed rest. Occasionally in the "ball valve" or tension type it is necessary to remove some air by paracentesis. Tuberculosis should be suspected but is only rarely associated with this condition. Even in the presence of roentgenograms indicating healed tuberculosis foci, long periods of hospitalization are an unnecessary hardship. Tuberculin reactions are useful. Tuberculin tests made on fifteen of the twenty-five patients were negative in seven, mildly positive in six and positive in two cases. Loss of time ranged from none to five months, the longest disability being in a patient with a suggestive apical scar. The average lost time was 3.84 weeks.

Ohio State Medical Journal, Columbus

36:349-480 (April) 1940

- Diagnosis and Treatment of Jaundice. T. E. Newell and M. T. Hoerner, Dayton.—p. 365.
Treatment of Certain Allergic Manifestations as Medical Emergencies. J. W. Thomas, Cleveland.—p. 372.
Leukocytosis Following Sulfapyridine Administration: Report of One Case. W. T. Wilkins Jr. and W. W. Weis, Piquette.—p. 376.
Fever Therapy at the Ohio Girls' Industrial School at Delaware: Preliminary Report. D. S. Cowles, Ostrander.—p. 378.
Rupture of Cavernous Hemangioma as Cause of Death in Newborn Infant: Report of Case. C. C. Kissinger, E. Sternfeld and S. D. Zuker, Toledo.—p. 383.
Sulfapyridine in Treatment of Pneumonia: Observations in 100 Cases. J. Rosenfeld and A. M. Rosenblum, Youngstown.—p. 385.
Pneumonia Cures. M. A. Blankenhorn, Cincinnati.—p. 389.

Public Health Reports, Washington, D. C.

55:485-530 (March 22) 1940

- Using Tests as a Medium for Health Education. M. Derryberry and A. Weissman.—p. 485.
Siphonaptera: Notes on Two California Species. W. L. Jellison.—p. 489.
Ornithodoros Hermsi: Feeding and Molting Habits in Relation to Acquisition and Transmission of Relapsing Fever Spirochetes. G. E. Davis and Mary E. Walker.—p. 492.
Relapsing Fever: Data Implicating Ornithodoros Hermsi as Vector in Northern Idaho. C. B. Philip and G. E. Davis.—p. 504.

55:531-572 (March 29) 1940

- Attempts to Produce Tumors in Rats by Feeding Crude Wheat Germ Oil Made by Prolonged Ether Extraction. H. Blumberg.—p. 531.
Factors Influencing Carcinogenesis with Methylcholanthrene: III. Effect of Solvents. M. B. Shimkin and H. B. Andervont.—p. 537.
Preservation of Infectious Agents of Some of the Rickettsioses. N. H. Topping.—p. 545.
Housing and Health Relationships Reexamined. B. Marquette.—p. 547.

55:573-618 (April 5) 1940

- Neglected Opportunities for Teamwork in County Health Department Practice. J. O. Dean and Evelyn Flook.—p. 573.
Studies of Sewage Purification: XII. Metabolism of Glucose by Activated Sludge. C. C. Ruchhoft, J. F. Kachmar and O. R. Plack.—p. 582.
*Infectious Equine Encephalomyelitis in the United States in 1939.—p. 601.

55:619-666 (April 12) 1940

- Geographic Distribution of Diphtheria Mortality in the United States. C. C. Dauer.—p. 622.
Incidence of Cancer in Cook County, Illinois, 1937. H. F. Dorn.—p. 628.
Disabling Morbidity Among Industrial Workers, Final Quarter of 1939 and the Entire Year. W. M. Gafafer.—p. 650.

Equine Encephalomyelitis in the United States.—The incidence, mortality and distribution of equine encephalomyelitis in the United States reported for 1939 (8,008 cases) was only about 4 per cent of the number of cases (184,662) reported in 1938. There were 2,471 deaths from the disease. These figures give a case rate of 1.1 per thousand animals (horses and mules) in the affected counties and a case fatality of 30 per cent. The case fatality rate for the eastern type of virus was apparently more than three times as high as that for the western type. In twenty-four states in which only the western type was proved or suspected the case fatality was 26.7 per cent, as compared with 89 per cent in nine states in which only the eastern type was proved or suspected. More than 90 per cent of the cases were reported to have occurred during the summer or early fall. This seasonal prevalence tends to support the pre-

vailing conception regarding the principal natural means of transmission, by blood sucking insects, especially mosquitoes. The reported incidence of encephalomyelitis in vaccinated and unvaccinated horses and mules was 0.37 and 1.2 respectively per thousand animals. No less than 3,000,000 horses and mules (about one fifth of the total in the United States) received specific prophylactic treatment. Vaccination and the retarding of insect breeding appear as the major factors in the control of the disease in animals and its transmission to man.

Rhode Island Medical Journal, Providence

23:47-60 (April) 1940

- *Bacterial Endocarditis and Syphilitic Heart Disease. C. H. Boyd, Baltimore.—p. 47.
- Medical Management of Gastric and Duodenal Ulcer. S. Morein, Providence.—p. 52.

Bacterial Endocarditis and Syphilitic Heart Disease.—Boyd believes that bacterial endocarditis superimposed on syphilitic valvulitis occurs more frequently than the literature would indicate. Eleven cases are reported in the literature in which it is possible to conclude that a preexisting syphilitic lesion of the aortic valves formed the base on which a secondary infection might have become implanted, and two in which a syphilitic aortitis was present on which vegetations had developed but which showed no valvulitis. These reports appeared within the last twenty years, and about one half in the last five, suggesting an increasing interest in the subject and the possibility that the two processes occur more frequently than has been thought. The necropsy protocols of 8,100 cases at the Baltimore City Hospitals contained 105 instances of bacterial endocarditis. Fourteen were felt definitely to be satisfactory examples of vegetative bacterial endocarditis superimposed on old syphilitic aortic valve disease. Because of lack of material for microscopic study, eight cases were discarded. In the six there was a history of syphilis, positive serologic tests or a history of antisyphilitic treatment. There was gross and microscopic evidence of syphilis of the aortic valve cusps and aorta with absence of valvular changes suggesting other pathologic processes, the vegetations were located and bacteria were demonstrated. Cases of terminal bacterial endocarditis were excluded. Of the six proved cases, all were in Negroes from 30 to 44 years of age. The onset of symptoms was considered acute in only one instance. The duration of symptoms attributable to the bacterial infection before admission varied between seven days and eight months, the period of hospitalization before death between two days and two months and the entire course of illness being nineteen days and two, three, two, seven and eight months respectively. Temperature elevations of only two were significant. Chills were not a feature in any case. Five of the six patients showed rather marked cardiac enlargement, four presented an aortic diastolic murmur, while in one a murmur developed in the course of the illness. Splenic enlargement was noticed in only one case. Pectehiae were not seen clinically in any instance, nor were there any embolic phenomena which could be attributed to the breaking off of vegetations. In none of the six cases was it suspected clinically that bacterial endocarditis had existed. This may have been responsible in some instances for failure to observe some of the more classic clinical signs of the disease: pectehiae, splenic tumor and hematuria. Five of the patients were admitted with cardiac failure and the sixth with lobar pneumonia. These features apparently overshadowed the bacterial endocarditis. Clinical diagnosis of the association of bacterial endocarditis with syphilitic valvular disease is at best difficult, but it should be suspected in any case of supposed syphilitic aortic insufficiency with a continuous febrile and progressively downhill course, especially if any of the classic signs are present.

Rocky Mountain Medical Journal, Denver

37:241-312 (April) 1940

- Surgical Jaundice. E. L. Eliason, Philadelphia.—p. 258.
- The Doctor's Stake in Group Hospitalization. W. S. McNary, Denver.—p. 265.
- Comparative Study of Tuberculin Patch Test. D. J. Barber, Greeley, Colo.—p. 269.
- Therapy of Parkinsonian Syndrome. P. A. Draper, Colorado Springs.—p. 272.

South Carolina Medical Assn. Journal, Greenville

36:97-134 (April) 1940

- Mesenteric Thrombosis. M. L. Mathias, Columbia.—p. 97.
- Congenital Urologic Difficulties in Children. K. H. Smith, Greenville.—p. 99.
- Diagnosis and Treatment of Acute Failure of Circulation. C. Eggleston, New York.—p. 102.

Surgery, Gynecology and Obstetrics, Chicago

70:731-858 (April) 1940

- Blood Pressure and Pulse Rate Changes During Thyroidectomy. Robbie Brunner and L. Seed, Chicago.—p. 731.
- Anesthesia and Anoxemia in Relation to Use of Nitrous Oxide. F. J. Murphy, Detroit.—p. 741.
- Disturbances in Circulation and Respiration in Obstruction of Blood Flow To and From Heart. W. E. Adams and L. Escudero, Chicago.—p. 744.
- Effect of Prolonged Local Anesthesia in Oil on Abdominal Wound Healing. C. A. V. Burt, New York, and J. A. Gius, Portland, Ore.—p. 753.
- *Thyroid Disease in the Southern Negro: Comparative Analysis of 470 White and 482 Negro Cases from Charity Hospital of Louisiana at New Orleans. F. F. Boyce, New Orleans.—p. 761.
- Effects of Eupaverine on Pulmonary Circulation. H. H. Bradshaw and R. J. Chodoff, Philadelphia.—p. 768.
- Concepts of New Classification of Ovarian Tumors. W. Schiller, Chicago.—p. 773.
- *Treatment of Spontaneous, Threatened or Habitual Abortion. C. G. Collins, J. C. Weed and J. H. Collins, New Orleans.—p. 783.
- Effect of Nitrous Oxide-Oxygen-Ether Anesthesia on Oxygenation of Maternal and Fetal Blood at Delivery. C. A. Smith, Boston.—p. 787.
- *Etiology and Treatment of Ulcers of Leg. L. M. Zimmerman and A. Faller Jr., Chicago.—p. 792.
- Production of Experimental Acute Appendicitis (with Rupture) in Higher Apes by Luminal Obstruction. O. H. Wangenstein and C. Dennis, Minneapolis.—p. 799.

Thyroid Disease in the Southern Negro.—According to Boyce, 952 patients with thyroid disease were treated at Charity Hospital in the course of the twelve and one half years ended July 1938. The white incidence (470 cases) was 1:691 in 324,969 admissions and the Negro (482 cases) 1:503 in 242,245 admissions. A consideration of the figures from the standpoint of toxicity disposes of the idea that toxic thyroid disease is rare in the Negro. It follows rather roughly the ratio of Negro and white hospital admissions. The diffuse variety of toxic disease is more frequent than the nodular in the Negro, although in nontoxic disease the reverse is true. Far more striking than the variations in the incidence are the disparities in mortality. The mortality for the whole series of 952 cases was 5.3 per cent; the Negroes furnished almost two thirds of the mortality. The total male mortality of 14.3 per cent, or fifteen of 105 cases, was more than four times the female mortality of 3.5 per cent, or thirty-three of 847 cases. In Negro women the mortality was higher than in white women in both varieties of nontoxic disease. In both varieties of toxic disease it was more than twice as high. In Negro men the death rate far exceeded the death rate of white men in all varieties of the disease and in the toxic variety it rose to shocking figures. These disparities are beyond explanation, as no argument would seem to apply to the Negro male which does not apply to the Negro female as well. In both Negro and white subjects the mortality for diffuse toxic disease is higher than for nodular toxic disease. This circumstance is also difficult to explain, as in nodular toxic disease the hazards of cardiac disease and other visceral damage are added to the inherent hazards of toxic thyroid disease. More than two thirds of all the patients were treated during the last five and one half years of the study and almost three fourths of the Negroes were treated within this period. In recent years the white mortality has shown some improvement, but the Negro mortality has continued very high, which perhaps is further evidence of the inherently more serious character of this disease in the Negro race. The author cites several studies by other workers which support indirectly his contention that toxic thyroid disease in southern Negroes, as is usual in endemic areas, seems to arise on the basis of a previous nontoxic diffuse goiter, whereas in white subjects it arises as a virgin pathologic change. The simple type of goiter, which amounts to little more than an enlargement of the neck, is fairly frequent in young Negro women. Of a number of such patients observed for several years the gland has either not increased in size or has decreased. Therefore it seems that symptomless thyroid enlargements in young Negro women in

this community should be operated on only after a period of observation. This type of goiter gives rise to no symptoms and in most cases no further pathologic change occurs. In the natural cycle the diffuse toxic stage wears itself out and the gland passes over into the nontoxic stage. Whether or not toxic manifestations reappear depends on whether or not the stimuli, known or unknown, which were responsible for the original activity again become effective. This cycle of events accounts for the fact that nontoxic nodular goiter formed 34 per cent of all the Negro cases against 25.5 per cent of the white cases. It is possible that in some instances the gland may return to the original colloid or resting state. This surmise is supported by the fact that there were forty-five cases of diffuse nontoxic goiter in Negroes more than 40 years of age against twenty-two cases in white persons. Part of the Negro mortality is undoubtedly to be attributed to the inadequate and overcrowded hospital facilities and part of it can be explained by the racial tendency to delay medical consultation. Adequate exposure of the glands is often difficult in Negroes owing to the fact that because of physical labor their neck muscles are highly developed. A study of the causes of death in the two groups of patients furnish proof of the serious character of both nontoxic and toxic thyroid disease in the Negro. The hippuric acid test of hepatic function performed on 130 patients, eighty-five of whom were Negroes, shows that in all varieties of thyroid disease hepatic function is lower in the Negro than in the white patient. Whatever the reason for a decreased hepatic function it probably explains part of the high Negro mortality. However, proper preparation will in most cases overcome the visceral damage. No data to explain the etiology of goiter in the Negro are to be had.

Spontaneous, Threatened or Habitual Abortion.—Collins and his associates used wheat germ oil in the treatment of thirty-six cases of spontaneous, threatened or habitual abortion in combination with progesterone and/or thyroid. The daily maintenance dose ranged from 1 to 1½ drachms (4 to 6 Gm.) unless the patient showed signs of threatened abortion, when from 8 to 12 drachms (32 to 48 Gm.) was given during the first twenty-four hours and then they were placed on the daily maintenance dose. Oil was given until patients reached from eight to eight and one half calendar months of pregnancy. Anterior pituitary-like gonadotropic substance in the form of antuitrin S was administered intramuscularly in 1 cc. doses given at weekly intervals until the patient was pregnant from four to four and one half calendar months. In a few cases injections were continued until the seventh calendar month. One rabbit unit of progesterone was administered daily intramuscularly when cramping or bleeding was actually present and, when the symptoms ceased, antuitrin S was substituted. Thyroid extract in from one tenth to one half grain (0.0065 to 0.03 Gm.) doses twice daily was given to all patients showing evidence of hypothyroidism: obesity, irregular menstrual periods, slow pulse and the like. Cases were classified as "threatened abortion" if cramping pain in the lower part of the abdomen persisted longer than twenty-four hours or if a patient had bleeding and as "habitual abortion" if the patient had had two or more spontaneous abortions or had had one previous abortion immediately prior to or attempted to abort during her present pregnancy. Of twenty-four patients with threatened abortion treated three went to completion despite therapy. Of the remainder, fourteen have been delivered of normal, full term children, one has now passed the period of viability, and the remainder have retained their pregnancies without further signs or symptoms of abortion. This represents a successful arresting of the abortion in 87 per cent of these cases. Of twelve habitual aborters eight have been delivered of normal, full term, healthy infants, while another is now pregnant six and one half calendar months. Three patients aborted despite treatment. In one of these the abortion was precipitated by an attack of malaria. These twelve women, prior to treatment, had a total of twenty-one pregnancies resulting in only three live births.

Etiology and Treatment of Ulcers of Leg.—Zimmerman and Faller assert that the majority of leg ulcers are associated with diseases of the veins. Whether due to varicose veins or to deep thrombophlebitis, they are essentially infectious in origin and develop on the basis of periphlebitic infiltration

and cicatrization. They are similar in pathogenesis and clinical manifestations and respond to similar forms of therapy. The essential predisposing pathologic change is ischemia from inflammatory sclerosis of the skin and subcutaneous tissues. External secondary infection adds to the fibrosis and circulatory insufficiency. The tissue changes are permanent and irreversible and the ulcers may persist or continue to evolve even after the associated varicosities are completely eradicated. From the various therapies for crural ulcers, one fact survives; gentle, mechanical pressure. Mechanical measures have been the mainstay of the authors' therapy for ulcers and eczemas of venous origin and are relied on almost to the exclusion of all other forms of treatment. They have come to believe that ulcers of the leg do not, as a rule, constitute a difficult problem. Treatment is almost invariably ambulant; bed rest and elevation are rarely found necessary. The patients are permitted to go about their usual affairs without restriction as long as the pressure bandages are in place. Frequently healing of ulcers by ambulant treatment has been accomplished when prolonged bed rest had failed. Recumbent management is limited to the small group of patients who do not tolerate occlusive dressings and to those with acute infection severe enough to demand bed rest. For obtaining gentle elastic pressure, Unna's paste boot is relied on not only for the treatment of ulcers but also for other complications of varicose veins, including local phlebitis, phlebotic indurations and varicose eczemas. Occasionally if in long standing callous ulcers, after the usual initial rapid improvement, the tempo slows down, renewed stimulus may be obtained by strapping the ulcer with strips of adhesive tape and by applying the boot over the strapping. If this stimulus also wears off before the ulcer is healed, further acceleration may be secured by applying pads of rubber sponge under the boot. At first the boots are changed once a week. Later when edema has subsided and the amount of exudate has diminished they may be left on for two or three weeks or longer. Patients are instructed to return with boots on. They are removed in the clinic, the limbs are cleansed and the new boot is applied. When healing is complete, further protection with Unna's paste or elastic bandages for several weeks longer is advised until the scar is sufficiently firm and tough. Post-thrombophlebitic limbs with persisting edema may require permanent supportive bandaging to prevent swelling and a tendency to further ulceration. Concomitant varicosities should be eradicated and associated local and general conditions attended to.

Tennessee State Medical Assn. Journal, Nashville 33:119-158 (April) 1940

- Restoration of Function After Injury, with Special Reference to Extremities. D. Eve, Nashville.—p. 119.
- Operative Correction of Lower Extremity Length Inequality. C. H. Crego Jr., St. Louis.—p. 124.
- Management of Fractures About Elbow. T. Bagwell, Knoxville.—p. 130.
- Rationale of Splenectomy in Treatment of Certain Anemias. G. M. Curtis, Columbus, Ohio.—p. 137.
- Acquired Syphilis in Childhood: Report of Field Study. C. B. Tucker, Nashville.—p. 143.

West Virginia Medical Journal, Charleston 36:145-192 (April) 1940

- Carcinoma of Breast. E. P. Buchanan, Pittsburgh.—p. 145.
- Treatment of Coronary Occlusion. W. C. Swann, Huntington.—p. 153.
- Surgical Treatment of Peptic Ulcer. C. Williams, Richmond, Va.—p. 157.
- Peptic Ulcer. M. A. Blankenhorn, Cincinnati.—p. 162.
- Physical Defects of School Children in Certain Areas of Logan County. B. D. Smith, Omar.—p. 165.
- Hemorrhagic Purpura Due to Sulfapyridine: Report of Case. C. A. Hoffman, Huntington.—p. 169.
- Preoperative and Postoperative Treatment from the Anesthetist's Point of View. E. B. Tucker, Morgantown.—p. 171.
- Regional Ileitis. R. P. Hawkins Jr., Clifton Forge, Va.—p. 177.
- Prenatal Diet and Sound Teeth. W. R. Batson, Pine Grove.—p. 179.

Wisconsin Medical Journal, Madison 39:253-336 (April) 1940

- Mental Medicine Today. C. F. Read, Elgin, Ill.—p. 267.
- Sulfapyridine (Dagenan) in Treatment of Pneumonia: Preliminary Report of Its Use in Ninety Cases. F. D. Murphy, R. A. Nimz and J. K. Karr, Milwaukee.—p. 272.
- Amblyopia. W. A. Ford, Shelbygan.—p. 278.
- Surgically Difficult Growths of Female Pelvic Viscera. A. H. Curtis, Chicago.—p. 281.
- Office Treatment of Gynecologic Conditions. H. H. Cummings, Ann Arbor, Mich.—p. 284.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1:517-558 (March 30) 1940

*New Method of Preventing Adhesions: Use of Amnioplastin After Craniotomy. Y.-C. Chao, S. Humphreys and W. Penfield.—p. 517.
Localized Emphysema as Sign of Incomplete Bronchial Obstruction. J. Maxwell.—p. 520.

*Cerebral Hemorrhage from Rupture of Congenital Intracerebral Aneurysm in Child. Kate Hermann and Agnes R. Macgregor.—p. 523.
Death from Quinine Poisoning. C. K. Vartan and G. Discombe.—p. 525.

Cyst of Jacobson's Organ. W. Brandt and H. T. Roper-Hall.—p. 527.

Prevention of Adhesions.—For the preparation of amnioplastin, amniotic membranes received from the delivery room are washed in water to remove as much of the blood and mucus as possible. The inner membrane (the amnion) is freed from the outer membrane (the chorion) by finger dissection. The membrane is again washed in water and placed in 70 per cent alcohol. The thin membrane is stretched, dried in sheets of convenient size and preserved dry or in 70 per cent alcohol until such time as final sterilization can be carried out. Sterilization is accomplished by autoclaving or boiling the sheets in distilled water. A thin, pliable, transparent membrane is produced in which there is no cellular structure. Amnioplastin is placed in Ringer's or physiologic solution of sodium chloride for twenty minutes and then flattened out between glass plates. Chao and his associates examined cats at intervals varying from ten to sixty days after the surface of the lacerated brain had been covered with this membrane. At necropsy it was found that a new dura had formed. In no instance was there evidence of gross adhesion. The amnioplastin sheet disappeared progressively. At thirty days no gross or microscopic evidence of membrane could be found. Remains of the amnioplastin could be seen as an amorphous substance without cellular structure. There was evidence of beginning regeneration of the dura and pia. By twenty days the dural defect had completely filled in, the pia had partially closed over the destroyed brain, and the membrane between the two was represented by a thin amorphous material. The authors recommend amnioplastin for clinical use when a craniotomy is carried out and the brain is exposed for a considerable time or when the brain is injured as by the removal of a tumor. The amnioplastin is to be interposed between dura and brain, both when the brain is intact and when it is lacerated. The authors used it for this purpose and believe that local postoperative edema is thus lessened. There was no increase in immediate cellular reaction in the spinal fluid. It has not been used long enough to determine its effect on the incidence of postoperative epilepsy. Wounds of the brain should be treated according to the best established principles, and amnioplastin should be spread over the wounded surface to prevent meningeal adhesion. If there is a defect in the dura as well as in the pia, amnioplastin will provide for the reformation of dura and pia as separate layers. The membrane permits regrowth of leptomeninges over the brain even after cerebral laceration. It provides for the restoration of the subdural space. It should serve in other military and civil surgical fields to prevent adhesions in the peritoneal and joint cavities and about tendons and sutured nerves.

Hemorrhage from Rupture of Intracerebral Aneurysm.—Hermann and Macgregor cite an instance of a congenital intracerebral aneurysm in a boy $4\frac{1}{2}$ years old. He had been in excellent health until symptoms of cerebral hemorrhage occurred. Shortly after admission to the hospital, breathing ceased; the pulse remained of good quality. A tracheal tube was inserted and artificial respiration was maintained. Exploratory cranial perforations were made in each parietal region but no collection of blood was found. A cannula on each side was directed through the brain toward the lateral ventricle. When the ventricular cavity was entered, fluid blood with fragments of clot and disorganized cerebral tissue escaped from each cannula. From this it was surmised that a massive intracerebral hemorrhage had occurred and had ruptured into one of the ventricular cavities probably producing severe damage to the brain substance. No further active treatment was attempted.

The child died fifteen hours after the onset of symptoms. Post-mortem examination revealed that the hemorrhage from the aneurysm had occurred much earlier than that of the fatal rupture. It was supposed that there was only a limited leakage of blood at this time, as no clinical history suggestive of an earlier "cerebral catastrophe" could be elicited. It was probable that at least a part of the fibrous thickening which affected the major portion of the sac wall was the result of this earlier blood clot. These events were probably of long standing, as the fibrous tissue of the sac wall was mature and relatively acellular. Two congenital defects of the muscular coats were found in relation to the junction of branches of the anterior perforating group of arteries with the left middle cerebral artery. The defects were at the acute angle of the junction in each case. There was a gap in the muscular coat, which was filled by fibrous tissue continuous with that of the adventitia. The internal elastic lamina was intact and the tunica intima was unaltered. Except for these microscopic defects at the branch junction lines the structure of the cerebral arteries was normal.

Edinburgh Medical Journal

47:225-296 (April) 1940

Surgery of Blood Vessels. J. R. Learmonth.—p. 225.
Fate in Body of Sulfapyridine. A. J. Clark.—p. 241.
Levulose Tolerance Test in Childhood. J. C. Thompson and A. W. Wilkinson.—p. 250.
A Pioneer in Tropical Medicine. E. D. W. Greig.—p. 262.
Early Stages of Leukemia. J. C. Caird.—p. 264.

Journal of Pathology and Bacteriology, Edinburgh

50:201-392 (March) 1940

Sex Hormones and Foë-Kurloff Cell. J. C. G. Ledingham.—p. 201.
Fibrosis of Liver in Heart Failure. T. D. Day and T. G. Armstrong.—p. 221.
Occurrence of Virus III in Rabbits in Lesions of Infectious Fibroma and of Transplantable Sarcoma. C. H. Andrews.—p. 227.
Bacterial Spores as Antigens. J. W. Howie and J. Cruickshank.—p. 235.
Infection of White Mice with Three Types of *Corynebacterium Diphtheriae*. K. Zinnemann.—p. 243.
Blood Changes and Postmortem Findings Following Intravenous Inoculation of Sheep with Culture Filtrates of *Clostridium Welchii*, Types A, C and D. W. S. Gordon, J. Stewart, H. H. Holman and A. W. Taylor.—p. 251.
Survey of Types of *Clostridium Welchii* Present in Soil and in Intestinal Contents of Animals and Man. A. W. Taylor and W. S. Gordon.—p. 271.
Observations on Living Vaccinia Virus in Corneal Cells of Rabbit. K. B. Eisenberg-Merling.—p. 279.
Bacteriologic Examination of Water Supplies. Clara Raven, D. Peden and H. D. Wright.—p. 287.
Pathologic Changes in Sex Organs After Prolonged Administration of Sex Hormones to Female Rats. V. Korenchevsky and K. Hall.—p. 295.
Haemophilus Influenzae and Influenza Virus in Relation to Bronchitis. J. Mulder, with technical assistance of R. van Kollem.—p. 317.
Observations on Polyarthritides and Experimental Erysipelothrix Infection of Swine. D. H. Collins and W. Goldie.—p. 323.
Studies on Erysipelothrix Rhusopathiae. P. S. Watts.—p. 355.

Lancet, London

1:629-676 (April 6) 1940

*Estrogenic Properties of Stilbestrol Dipropionate and Hexestrol. P. M. F. Bishop, R. K. Bowes, M. Boycott, R. Kellar, T. N. Macgregor and B. C. Murless.—p. 629.
Pneumococcal Parotitis and Antecedent Auriculotemporal Syndrome. R. T. Payne.—p. 634.
*Blood Urea and Urea Clearance Before and After Administration of Urea by Mouth. F. Morton and A. M. Nussey.—p. 636.
Acute Mercurial Poisoning After Cystoscopy: Report of Three Cases. B. H. Page and C. Wilson.—p. 640.
Extracranial Ligation of Middle Meningeal Artery. M. Wassermann.—p. 643.
Treatment of Gas Gangrene. E. da C. Afonso.—p. 644.

Estrogenic Properties of Stilbestrol Dipropionate and Hexestrol.—Bishop and his associates treated sixty-six cases in which there were menopausal symptoms and found that eight did not react to stilbestrol dipropionate, to hexestrol or to both. Of thirty-six cases of atrophic vaginitis, one case did not respond either to the dipropionate or to hexestrol. Thus, in 102 cases presenting subjective and/or objective menopausal manifestations relief was obtained in ninety-three (91.2 per cent). Of the sixty cases treated with stilbestrol dipropionate six (10 per cent) did not respond. Of the sixty-three cases treated with hexestrol seventeen (27 per cent) did not respond. The higher percentage of failure with hexestrol was probably due

to the relatively lower dosage. In forty-eight cases of amenorrhea, menstruation was induced in twenty-eight by stilbestrol dipropionate or by hexestrol or by both. Of thirty-one cases treated with stilbestrol dipropionate nine did not respond; nor did twenty out of the twenty-seven cases treated with hexestrol. These rather poor results are undoubtedly due to low dosage. The two substances gave poor results in a small group of cases of dysmenorrhea and uniformly successful results in inhibiting lactation. Toxic by-effects were noted in twenty-three of 155 cases of the present series. They were usually transient and mild, such as nausea and occasionally vomiting and constipation. The authors conclude that stilbestrol dipropionate and hexestrol have estrogenic properties similar to those of stilbestrol. Toxic effects, though not severe, developed in 21.6 per cent of the cases treated with stilbestrol dipropionate and in 4.5 per cent of the cases treated with hexestrol.

Blood Urea and Urea Clearance.—Morton and Nussey investigated the effect of large doses of urea on the clearing capacity of the kidneys. Their results confirmed previous observations that the Van Slyke technic often yields in normal subjects clearance values well below the accepted standards. Nineteen of fifty normal subjects failed to qualify as normal. Normal values for urea clearance were obtained after the administration of a 15 Gm. dose of urea by mouth. In parallel experiments on patients with evidence of renal disease the ingestion of urea did not improve the clearance figures, and a fall was often recorded in such cases. The authors saw no harm resulting from giving this heavy dose of urea to patients with an already high level of blood urea, though they think that this procedure would not commend itself as a routine in cases of uremia or in the acute phase of nephritis. Frequent collections of specimens of urine and of blood after the ingestion of urea made it possible to follow its effect on the functional capacity of the kidneys. Calculation of the urea clearance over any period of time must be based on the knowledge that the blood urea remains reasonably constant throughout. The degree of constancy of this factor after the administration of urea by mouth depends largely on the rate of absorption of urea from the bowel and of its disposal from the blood stream by the kidney. A study of blood urea curves, based on half-hourly observations, demonstrates that a relatively stable period exists between three-quarters and one and three-quarters hours after the administration of urea by mouth. The blood urea observed at one and one-quarter hours approximates closely the mean calculated from the three-quarters hour and one and three-quarters hour values. The authors criticize the procedure which Fowweather proposed for the Van Slyke clearance formulas to specimens obtained after the administration of urea by mouth and recommend the following modification: The patient is allowed to have his usual meal the night before. On the morning of the test a breakfast of bread, butter and a piece of fruit, with one small cup of tea, is permitted. Two hours later the patient empties the bladder and immediately afterward 15 Gm. of urea in 200 cc. of water is given. The bladder is again emptied after forty-five minutes and the exact time recorded. This is repeated an hour later. Midway between the two a specimen of blood is obtained. The urea clearance is calculated from the data obtained from analysis of the third specimen of urine.

Practitioner, London

144:309-452 (April) 1940

- Diagnostic Significance of Knee Jerk. H. Cohen.—p. 309.
Neuralgia. W. Harris.—p. 320.
Aspect of Insomnia. T. A. Ross.—p. 329.
Diagnosis and Treatment of Spinal Cord Injuries. D. McAlpine.—p. 337.
Epilepsy. W. R. Russell.—p. 347.
Diagnosis and Treatment of Syphilis of Nervous System. F. R. Ferguson.—p. 354.
Meningitis. W. G. Wyllie.—p. 369.
Diagnosis and Treatment of Intracranial Tumors. W. McKissock and J. W. D. Bull.—p. 379.
Recent Advances in Study of Polyneuritis and Its Treatment. S. Behrman.—p. 388.
Pink Disease (Erythredema Polyneuritis, Infantile Acrodynia). D. Paterson.—p. 404.
Air Sickness. T. S. Rippon.—p. 411.
The Emergency Legislation. D. H. Kitchin.—p. 421.
Modern Therapeutics: X. Expectorants and Linctuses. R. A. Young.—p. 433.

Journal de Chirurgie, Paris

55:193-288 (March) 1940

Calluses: Etiology and Biologic Aspects. R. Leriche and A. Jung.—p. 193.

*Traumatic Diabetes Insipidus. J. Bréhant.—p. 205.

Traumatic Diabetes Insipidus.—Bréhant reports a case of traumatic diabetes insipidus which he observed daily for four months after the occurrence of the trauma. A woman aged 41 was hurt in an automobile accident. Examination revealed fracture of the nasal bones and a painful spot at the level of the left temporomaxillary articulation. The next day left oculopalpebral ecchymosis, polydipsia, polyuria, loss of smell and decrease in vision were observed. X-ray examination disclosed a radiating frontal fracture at the roof of the orbit, fracture of the left temporal bone, and opacity of the left frontal sinus and right sphenoid sinus suggesting a hematoma. Diabetes insipidus in this case was caused either by a hemorrhage occurring within the tuber or by pressure of a hematoma at the level of the floor of the third ventricle. The patient was treated with estrogenic substance, lumbar puncture, a salt-free diet, subcutaneous injections of solution of posterior pituitary and posterior pituitary administered in a powdered form into the nose. The latter two and particularly the last method were effective. Diuresis decreased considerably while treatment was being administered. Diabetes insipidus as a complication is observed as a rule after frontal and temporal trauma. It may be caused by direct traumatic lesion of the diabetogenic centers, by foreign body, by compression caused by a hematoma, by intracranial hypertension, by involvement in a fracture callus, by hypertrophic pachymeningitis, by fracture osteitis of the sphenoid or by posttraumatic gliomatous neoplasms. Polyuria and polydipsia are the main symptoms. There may appear other morbid manifestations pointing to complex changes in the infundibulum and the hypophysis. In addition to the center of water metabolism, that of fat, as well as sexual and hypnic functions, may likewise be involved. The seat of these lesions has not been definitely located. Some believe it to be in the hypophysis, others in the infundibulotuber. The prognosis in traumatic diabetes insipidus is encouraging but requires constant care. The treatment consists chiefly of hypophysial therapy administered hypodermically or still better of a powdered hypophysial substance administered intranasally. The latter form of treatment produced the best results. Early surgical attention at the time of traumatism may favorably influence the course of the disease in some instances.

Schweizerische medizinische Wochenschrift, Basel

70:269-292 (March 30) 1940. Partial Index

- Survey Over Modern Glaucoma Operation with Special Consideration of Cyclodiathermic Puncture. H. Richner.—p. 269.
Diagnosis and Therapy of Adrenal Insufficiency. F. González Álvarez, O. Orias and J. B. Sosa Gallardo.—p. 271.
Demonstration of Numerous Microfilariae in Both Eyes by Means of Slit Lamp Microscope. B. Semadeni.—p. 275.
Surgical Correction of Foot Deformity Produced by Defect of Fibula. K. Lenggenger.—p. 276.
*Stilbene Preparations with Estrogenic Action in Endocrine Therapy. R. Wenner.—p. 277.
*Treatment of Epidemic Meningitis with Sulfapyridine. W. Jackli.—p. 280.
Azosulfamide in Treatment of Bacillary Dysentery. V. Gorlitzer.—p. 281.

Stilbestrol in Endocrine Therapy.—Wenner administered stilbene preparations orally to nine women who had undergone roentgen castration for menopausal hemorrhages some two years previously. Two 5 mg. tablets were given every three or four days until a total of 60 mg. had been reached. This dose produced a glandular hyperplasia, while from 25 to 30 mg. was sufficient to produce thickening of the quiescent endometrium. The subsequent administration of progesterone resulted in true menstruation and an enlargement of the uterus. Hot flushes, vertigo, headaches and pruritus vulvae were noticeably improved. Stilbestrol was administered to fourteen women to prevent lactation and to thirty-seven to inhibit it. Two 5 mg. tablets given during the first twenty-four hours after delivery prevented lactation in all but three. The author suggests that in at least one of these cases the drug might have been given

too late. He suggests that 2 or 3 mg. of stilbestrol be given by injection during the first hours after delivery and the effect of this injection be supported by oral medication for the next two days. The required dosage fluctuates individually. The arrest of an existing lactation is more difficult than is its prevention before onset. Two 5 mg. tablets given on five successive days usually arrest the lactation. Secondary effects necessitating interruption of medication were comparatively rare in a series of eighty cases. Nausea developed in two and vomiting and vertigo in one.

Sulfapyridine in Epidemic Meningitis.—Treatment of epidemic meningitis at the children's hospital in Zurich consists, according to Jäckli, in oral administration of sulfapyridine in a daily dose of 1 Gm. for each 10 Kg. of body weight. This quantity is distributed evenly over the twenty-four hours at four hour intervals. The medication is continued until the cerebrospinal fluid is clear (from 50 to 150 cells per cubic millimeter) and meningococci are no longer demonstrable, which is usually the case in from two to five days. The dose is gradually decreased and the medication is terminated between the eighth and the twelfth day. The individual doses at the onset are somewhat larger in order to reach the desired concentration in the blood and cerebrospinal fluid as soon as possible. Lumbar punctures are made twice daily in the beginning, control punctures occasionally. The treatment is often begun with a blood transfusion. Serum is not given. Cardiac and circulatory stimulants are employed according to need. Intramuscular injections of sulfapyridine are employed when oral medication is not tolerated. Sulfapyridine by intravenous drip is another valuable mode of administration. It makes possible the administration at the same time of nutrient substances and fluids. It is reserved for comatose patients and for patients with primary uncontrollable vomiting. The daily dose of soluble sulfapyridine is added to the infusion fluid of a 5.5 per cent solution of dextrose in Ringer's solution. Cardiac and circulatory stimulants may be added to the infusion fluid. The drip infusion is continued only as long as absolutely necessary, usually from two to five days. The author employed this therapy for sixteen children with epidemic meningitis admitted during the epidemic of December 1939 to February 1940. The ages of the children varied between 6 months and 15 years. They were either completely cured or had advanced far in their convalescence at the time of the report.

Archivio Italiano di Chirurgia, Bologna

58:1-94 (Jan.) 1940

- *Infiltrations of Procaine Hydrochloride in Treatment of Circumscribed Acute Inflammation. M. Montanari Reggiani.—p. 1.
Behavior of Crasis of Blood in Hemoperitoneum. A. Pozzan and G. Baccaglioni.—p. 56.
Horseshoe Kidney Complicated by Tumor and by Calculosis. G. Placitelli.—p. 79.

Procaine Hydrochloride in Acute Inflammations.—Montanari Reggiani reports the effect of local infiltration with procaine hydrochloride in acute circumscribed inflammatory processes in twenty-six cases. From 2 to 4 cc. of a 1 per cent solution of procaine hydrochloride was injected in cases of circumscribed inflammation and from 20 to 40 cc. in more extensive acute inflammation. The infiltrations were carried out as for regional anesthesia, the solution being injected slowly into the inflamed tissues daily for the first two or three infiltrations and every other day for the last two. The total number of infiltrations varied from two to five. The first injection relieved the pain within the first hour and brought on an immediate reaction of transient aggravation of the symptoms, except that of pain. The reaction lasted from twelve to twenty-four hours and was followed by rapid regression of inflammation and infiltration and by limitation of the local process. Subsequent infiltrations were effective in controlling pain and in accelerating the regression of inflammation and suppuration. Clinical recovery was obtained in from three to six days. The clinical improvement was paralleled by alterations in the leukocyte count of the peripheral and the focal blood and the conversion of the acid reaction of the pus to an alkaline one. The neutrophilic leukocytosis, diminu-

tion in the monocytes and lymphocytes and the absence of the eosinophils, and the leukopenia of the focal blood were changed to a normal blood picture after the treatment. The author concludes that infiltrations of procaine hydrochloride bring about a stimulation of local and general immunity by which inflammation and suppuration are controlled.

Deutsches Archiv für klinische Medizin, Berlin

185:481-656 (Feb. 14) 1940. Partial Index

- Blood Reserves in Man. F. Grosse-Brockhoff and W. Molineus.—p. 481.
Venous Blood Flow. F. Grosse-Brockhoff.—p. 511.
*Acute Thrombopenic Purpura with Granulocytopenic Reactions. H. Oettel and S. Thaddea.—p. 557.
*Chronic Leukemia and Polycythemia. W. Tischendorf and K. Herzog.—p. 566.

Hemorrhagic Purpura with Granulocytopenic Reactions.—Oettel and Thaddea describe an unusual case of acute essential thrombopenia with granulocytopenia in which blood transfusions and a combined vitamin C and liver extract therapy effected a prompt recovery. The patient was a man aged 38 whose familial and personal history was good. A septic angina with high fever induced a painful gingivitis. After several weeks small red spots appeared over the entire body, increasing in intensity. Military exertions aggravated the condition. Pains set in extending from the abdomen to the small of the back. Blood appeared in the urine and in the expectorations. At this stage he was hospitalized. The general tendency to cutaneous bleeding was found to be especially localized in the joint flexures. Three small painful necrotic areas were observed on one side of the mouth near the upper molars. Laboratory tests disclosed a leukopenia (2,400) with lymphocytosis (85 per cent), neutrophilia (5 per cent) and eosinophilia (5 per cent). The erythrocytes were approximately normal; thrombocytes were greatly diminished (43,000); bleeding and clotting times were greatly prolonged (thirty-two minutes and thirteen minutes, respectively). Sternal puncture showed myelocytic and metamyelocytic bone marrow conditions but no damage to the megakaryocytes. Hematuria was massive with a 9 per thousand albumin in the erythrocytic filtrate, which on spectroscopy was seen to contain no hemoglobin. The patient was given three blood transfusions of 500 cc. at intervals of three days, daily intramuscular injections of 2 cc. of liver extract and intravenous injections of 0.5 Gm. of ascorbic acid. According to the authors a hemorrhagic diathesis of the skin and mucous membrane in conjunction with septic angina justifies the diagnosis of acute hemorrhagic purpura. The general capillary system is affected. In addition the blood and bone marrow tests show a steady reduction in thrombocytes and neutrophils and an increase in lymphocytes. High fever and painful necroses in the oral regions attend the granulocytopenic manifestations, which may be so aggravated by undue physical strain as to become outright granulocytopenia. Allergy to foods or medicaments is not an etiologic factor.

Chronic Leukemia and Polycythemia.—In connection with their study of sixteen cases of myeloblastic leukemia and of the literature, Tischendorf and Herzog discuss the diagnostic difficulties (clinical, hematologic and anatomic) inherent in the disease pictures. Acute myelosis may appear simply as a hypertrophic tonsillitis and remain unrecognized until a dental intervention activates the oral infections, resulting in high fever, anemia, enlargement of the spleen and leukocytosis. The symptomatology of the subacute form is deceptive because its manifestations are variable. Acute and subacute myeloblastic leukemia may be biologic variations of chronic leukemia. Neither the leukocytic picture nor sternal puncture furnishes an unequivocal distinction between the two types. However, the subacute form is characterized by generalized edema of the lymph nodes, whereas the acute type is localized. The authors think that acute and subacute myeloblastic leukemia may rightly be regarded as of neoplastic nature. They are in agreement with other investigators that acute myelosis represents a condition of metastasizing neoplasia that needs to be studied from this point of view. Edematous processes must be interpreted as expressing the form which the varying

degrees of blood cell maturation may assume. Like leukemias, erythremias need to be regarded as tumor growths. Polycythemias not infrequently develop into myeloid leukemias, thus disclosing close interconnection. As fibromas, fibrosarcomas and sarcomas represent different degrees of maturity of the fiber tissue, blood cells may also develop with varying maturation. In myelosis, immature cells may appear abundantly in the blood and extremely immature and pathologic myeloid cells may predominate, as is shown by the malignancy and rapid evolution of micromyeloblastic leukemias.

Deutsche Zeitschrift für Chirurgie, Berlin

253:97-324 (Feb. 16) 1940

- Intra-Articular Xanthomas. H. Willenegger.—p. 97.
Roentgenologic Results of Treatment of Vertebral Fractures. W. Ehrlich.—p. 125.
Roentgenologic Aspects of Epiphyseal Necroses, Also Contribution to Early Diagnosis of Perthes' Disease. J. C. Lehmann.—p. 132.
*Morphology and Clinical Aspects of Thymus. W. Weise.—p. 145.
Bactericidal Effect of Bone Marrow Under Influence of External Influences. F. Bordsch.—p. 237.
*Raynaud's Disease and Scleroderma. P. Sunder-Plassmann and F. Jaeger.—p. 263.
Administration of Organic Calcium Salts in Combination with Vitamin B and D as Well as C in Experimental Fractures of Ribs, Radius and Ulna in Different Breeds of Rabbits. G. Krockert.—p. 293.
Regeneration: Its Application in Reconstructive Surgery. K. Gebhardt.—p. 315.

Morphology and Clinical Aspects of Thymus.—Weise studied the morphology of the thymus in specimens obtained from surgical interventions, from ten cases of sudden death and from eighty-nine necropsies as well as in a number of dogs. These studies suggested that the thymus is a functioning gland throughout the entire life. Weise was able to demonstrate a hitherto unobserved epithelial medullary framework typical of a gland of internal secretion. The epithelial medullary reticulum of the thymus is a secretory, holocrine, tubular gland. The secretion is carried away by the lymph and blood vessels. The smallest morphologic and functional unit of the thymic medulla is a short epithelial tube, a nearly spherical body. Groups of these "primitive bodies" are connected by a common membrane. The tubule performing the holocrine function has a limited life span and new tubules are formed probably continuously throughout life. Aged tubules are transformed into Hassal's corpuscles and as such they no longer perform an endocrine function. The thymic medulla of the dog is a tubular gland only in young animals. In aged animals it is transformed into a storage organ, which retains its basic structure; namely, a parenchyma split by tubuli which are transformed into cysts. These new observations on the structure and physiology of the thymic medulla led to a new evaluation of its function in various pathologic conditions, such as osteitis fibrosa generalisata, lymphatic leukemia, lymphogranulomatosis, hepatic cirrhosis and particularly exophthalmic goiter and myasthenia gravis. In some of these disorders the tubuli seemed to be stimulated to greater activity, whereas in others an inhibitory effect was observed. Examination of the thymus in patients with exophthalmic goiter revealed a histologic picture indicative of a myasthenic component. Observations on the thymus of patients with a severe form of myasthenia pseudoparalytica disclosed morphologic and metabolic characteristics of a hyperfunctioning gland. The interpretation of myasthenia as the result of a benign neoplasm of the thymic medulla suggests the possibility of a cure through surgical intervention. Irradiation is not promising because the thymic medulla seems to be refractory to rays. The author believes that surgical removal should be attempted in severe cases of myasthenia even though the fact that the thymus may extend far on the pericardium may render the excision difficult. Thymectomy in dogs did not cause a loss of function but was followed by hyperplasia of the lymph nodes of the organism.

Raynaud's Disease and Scleroderma.—Sunder-Plassmann and Jaeger describe the clinical and neurohistologic features of two cases of Raynaud's disease associated with scleroderma. The first patient was a woman aged 34 in whom, after all conservative therapeutic methods had failed, the right stellate and the middle cervical ganglions were resected. The disfiguring facial lesions subsided. The lesions of the hands, however, contractions and trophic ulcers, as well as attacks of pain and pallor, persisted. The trophic ulcerations disappeared follow-

ing a left sided stelletomy. The second patient, a woman of 18, had a right sided stelletomy, which failed to improve the condition. Microscopic examination of the ganglions revealed identical pathologic changes. The authors believe that in Raynaud's disease associated with scleroderma, as in Raynaud's disease alone, there exists a toxic lesion in the substance of the central and peripheral portions of the sympathetic nervous system. This toxic lesion is morphologically demonstrable. It gives rise to a peculiar condition of irritation, to a hyperergic reversion in the sympathetic nervous system, which is followed by attacks of impaired blood supply and by dystrophic changes in the tissues. The authors gained the impression that hormonal changes play an important part in view of the fact that the neurosympathetic and the endocrine systems form a single biologic unit. They stress the significance of the neurohormonal cell system, which may be regarded as a part of the sympathetic preterminal plexus and the peculiar epithelial cells which exist in the ganglions of the sympathetic trunk. Certain factors, the nature of which has still to be explained but in which neurohormonal interactions play a part, are responsible for the fact that in some cases only Raynaud's disease develops while in others it may be associated with scleroderma.

Klinische Wochenschrift, Berlin

19:169-192 (Feb. 24) 1940

- Action of Nicotine and Regulation of Smoking. W. Straub and A. Amann.—p. 169.
*Renal Threshold of Blood Sugar Concentration and Its Modification by Vitamin C. R. Stöger.—p. 171.
*Condition and Function of Heart Under Influence of Digitalis. F. Meyer.—p. 174.
Determination of Iron in Cerebrospinal Fluid. J. Vonkennel and T. Tilling.—p. 177.
Observations on Significance of Gonococcus Complement Fixation Reaction for Efficacy of Sulfanilamide Preparations in Gonorrhea of Women. W. Schramm.—p. 182.

Renal Threshold of Blood Sugar and Vitamin C.—By renal threshold Stöger means that concentration of blood sugar which, when exceeded, results in glycosuria. The normal threshold value in persons of about 50 years of age averages 185 mg. per hundred cubic centimeters. The renal threshold for sugar is variable and is influenced by dietetic mistakes, complicating disease, change from ordinary insulin to insulin with retarded action, hormonal changes and psychic influences. The threshold increases with age. In diabetic patients over 50 years of age it is around 200 mg. per hundred cubic centimeters and higher. The threshold increases with the duration of diabetes mellitus, but in the course of dietetic mistakes and complicating diseases it may again decrease. Renal diabetes is characterized by a low renal threshold in the presence of a normal blood sugar value, by lack of dependence of glycosuria on the food intake and by the inefficacy of insulin. The resistance to insulin involves only the glycosuria, not the glycemia. The pathogenic relationship between the renal and true diabetes is indicated by the observation that renal diabetes is frequent in relatives of diabetic patients and that renal diabetes may develop into true diabetes mellitus. The author found that oral administration of ascorbic acid in doses of from 300 to 500 mg. daily for eight days "fixed" the threshold or rapidly increased it after it had been decreased by a tolerance test. He concludes that vitamin C acts as a biocatalyzer. He employed this action of vitamin C for therapeutic purposes in cases of renal diabetes and found that the intermittent administration of vitamin C (five days every month) produced a considerable and permanent reduction of glycosuria. He thinks that this therapy might prevent or at least retard the transformation of renal diabetes into a true diabetes mellitus.

Heart Under Influence of Digitalis.—Studies on the cardiac function of patients with circulatory defects led Meyer to a new conception which he believes to be of value for the understanding of the action of digitalis. He believes that the clinical picture of cardiac insufficiency characterized by air hunger and edema is not alone and primarily the result of reduced systolic pumping action of the heart. This widely accepted opinion is not the only possible one. Studies on the cardiac beat volume of patients with circulatory defects generally disclose a normal cardiac performance. On the basis of the

constancy of the work effort of the heart in the majority of cases with clinical signs of circulatory insufficiency the author develops a new conception of the therapeutic mechanism of the digitalis bodies. According to this conception the action of digitalis is not due to an increase in the cardiac performance but rather to a change in the internal action requirements of the cardiac musculature. This change consists in the pleonectic shifting of the volume-tension curve of the cardiac musculature. The muscle is enabled to perform its work with essentially smaller initial tensions. The diseased heart can work with reduced venous filling pressures under the influence of digitalis. The correlatively increased pressure on the venous side of the circulation decreases and thus the stasis disappears, which up until then had enabled the weakened heart to do normal work. Thus it is not the change in the performance but rather in the condition of the heart which is decisive for the improvement of the circulatory disease.

Strahlentherapie, Berlin

67:1-172 (Jan. 31) 1940. Partial Index

- *Significance of Finsen Light Treatments in Control of Lupus Vulgaris. S. Lomholt.—p. 3.
Thorium X Rays in Carcinomas of Skin and Hemangiomas. K. Hoede and F. Schaefer.—p. 23.
Radium Treatment of Erythroplasia Penis. J. Körbler.—p. 61.
Effect of Roentgen Rays on Cell. P. del Buono.—p. 83.
Connection Between Sarcoma and Leukemia. W. Rathschek.—p. 139.

Finsen Light Therapy in Lupus Vulgaris.—Lomholt reviews the evolution, construction and operation of Finsen apparatus for lupus vulgaris and the successful results achieved either by local irradiation or by supplementary light baths of the body. Of 187 patients, 175 (96.7 per cent) were cured. Reexamination, after a period of years, of 350 patients, representing a section of the country whose past history was one of serious and neglected cases, showed 76.5 per cent healed and 16 per cent with smaller and 7.5 per cent with larger infectious traces. Two thirds of all patients were women. The therapy consists of from four to six series of treatments (direct current, 40 ampere lamp intensity) lasting from twenty to thirty minutes each and extending from two to three weeks and leaves soft, smooth scars with a minimum of disfigurement. Patients report for periodic reexaminations. The author points out that a parallelism was found statistically between the incidence of pulmonary tuberculosis and lupus vulgaris in different districts of the country. A bacteriologic test showed the presence of bovine tuberculosis in 45 per cent of 110 cases in which reaction was obtained, though lupus, contrary to the general belief, is not predominantly a rural disease and is found in countries, such as Norway and Finland, in which bovine tuberculosis is practically unknown.

Klinicheskaya Meditsina, Moscow

18:1-208 (No. 1) 1940. Partial Index

- Symptomatology of Brucellosis. A. L. Myasnikov.—p. 24.
*Etiologic Factors in Atherosclerosis of 134 Cases. D. M. Grotel, E. E. Bykhovskaya, M. M. Pavlova, M. G. Pokhodilova and V. G. Shor.—p. 34.
Age Alterations of Lipoid Metabolism. V. I. Solutsev.—p. 50.
Blood Lipids in Normal Persons and in Persons with Atherosclerosis. B. V. Ilyinsky.—p. 55.
Residual Blood Carbonates in Cardiovascular Disease with Decompensation. D. G. Krichin.—p. 90.
Blood Iodine in Normal Persons and in Exophthalmic Goiter. N. M. Vaysman.—p. 97.

Atherosclerosis.—Grotel and his co-workers studied 485 patients with a clinical diagnosis of atherosclerosis and 105 control patients. In 134 cases of the group presenting atherosclerosis a postmortem examination was made. In the present study only the cases with a postmortem (134) are included. Histories and microscopic studies were carried out according to a definite scheme. An attempt was made to correlate the two. The effect of alcohol, nicotine, psychic factors and infection was investigated. Microscopic studies failed to establish any important role of alcohol in the development of atherosclerosis. Attention is called to the frequent occurrence of atherosclerosis among Mohammedan peoples, almost none of whom use alcoholic drinks. A study of thirty heavy smokers and twenty persons who did not smoke demonstrated the existence of a definite

parallelism between smoking and the degree of atherosclerosis, especially with regard to the coronary arteries. There were three times as many smokers with coronary atherosclerosis as nonsmokers (75 per cent and 25 per cent). Likewise among patients exhibiting a more severe degree of atherosclerosis of the brain vessels there were 65.5 per cent of smokers and 34.5 per cent of nonsmokers. With regard to the influence of the psychic sphere, the authors found that among patients exhibiting a high degree of aortic sclerosis 40 per cent had a history of psychic trauma as compared with 30 per cent who did not have such a history. Intensive work as a factor in definite aortic sclerosis was noted one and one half times more frequently than in a group with a mild degree of atherosclerosis. Psychic trauma was absent in 32.5 per cent of cases of mild degrees of coronary atherosclerosis, whereas psychic trauma was absent in only 17.3 per cent with marked coronary atherosclerosis. As the degree of coronary atherosclerosis increased, so did the incidence of psychic trauma. The shocking or sudden psychic trauma and intensive intellectual labor were found predominantly in the group with grave coronary atherosclerosis, whereas chronic protracted trauma was more frequent in the group of atherosclerosis of brain vessels. Infectious diseases did not seem to influence the incidence of atherosclerotic changes. A slight predominance existed only in the case of rheumatic infection and pneumonia. With regard to the role of nutrition, the material was divided into three groups: (1) the group with normal nutrition, (2) the group with prolonged, excessive nutrition, particularly with regard to animal proteins and cholesterol-containing substances and (3) the group with a history of prolonged periods of insufficient food intake, particularly of animal proteins and cholesterol-containing substances. In a group exhibiting a mild degree of atherosclerosis, the greatest incidence belonged to the group with insufficient nutrition. As the degree of atherosclerosis increased, the predominance was taken by the group with normal or excessive nutrition. The same relation was noted with regard to coronary atherosclerosis. The greater the degree of coronary involvement, the less is the percentage of patients with insufficient nourishment and the greater the percentage with normal or excessive nourishment. The authors emphasize the dependence of the degree of atherosclerosis of the aorta and of the coronary vessels on excessive use of cholesterol-containing substances. The following conclusions were drawn: 1. Chronic alcoholic intoxication apparently has a secondary role in the etiology of atherosclerosis. 2. A chronic nicotine intoxication assists in the development of atherosclerosis in general and of coronary atherosclerosis in particular. 3. The significance of excessive nourishment and particularly of excessive intake of animal proteins and cholesterol-containing foods is definite. 4. Psychic trauma plays an important part in the development of coronary atherosclerosis. This is true of sudden psychic trauma as well as of long continued overwork on the part of the psychic sphere (intensive intellectual labor). 5. The role of infections in the etiology and pathogenesis of atherosclerosis has not been demonstrated.

Vrachebnoe Delo, Kharkov

21:611-690 (Nos. 10-11) 1939. Partial Index

- Male Climacteric. A. M. Sigal.—p. 617.
*Combined Dietetic, Ammonium Chloride and Digitalis Therapy of Cardiovascular Decompensation. A. I. Gruzin.—p. 625.
Etiology of Pneumonia in Childhood. S. V. Rodkin, E. M. Turchina, K. G. Breslavskiy and O. S. Kotservalova.—p. 629.
Pathogenesis of Pneumonia Complicating Measles: Allergic Vasculitis. P. P. Ochkur.—p. 633.
Microscopic Studies of Ulcers of Colon in Children. N. A. Maksimovich.—p. 637.

Dietetic, Ammonium Chloride and Digitalis Therapy of Cardiac Decompensation.—According to Gruzin the effect of rapid dehydration of a dropsical patient by means of powerful diuretics such as merbaphen, salyrgan and mercurosol is not always a favorable one. Rapid dehydration weakens the organism. The effect of mercurial preparations on the kidneys is not a harmless one and the excellent diuretic effect is almost always transient and is not infrequently followed by an increase in the edematous state. The author proposed in 1936 a combined therapeutic method which can be modified, depending on the needs in the individual case. The essence of the treatment consists in giving a cardiac patient in a state of decompensation

a calorically adequate diuretic diet and ammonium chloride for four days. The diet consists of milk, whey, baked apples, cream, sugar, butter, baked potatoes, and dextrose intravenously. The albumin content of the twenty-four hour ration amounts to 84 Gm., of fats to 41 Gm. and of carbohydrates to 191 Gm. The caloric value amounts to 1,515. Most of the ingredients in this diet possess a diuretic effect. This ration is divided into five or six portions. Addition of ammonium chloride increased diuresis. Ammonium chloride was found not to be injurious to the kidneys, even in the presence of a chronic nephritis. Studies of the alkali reserve of the blood after protracted administration of ammonium chloride demonstrated an increase in the alkali reserve of the blood and a lowered ammonia in the urine. The author's experience with over 1,000 patients suggests the superiority of the gradual method of dehydration by means of his combined method over the administration of mercurials. In cases accompanied by tachycardia and arrhythmia the author added to the foregoing 0.1 Gm. of digitalis three times daily.

Acta Chirurgica Scandinavica, Stockholm

83:479-570 (March 10) 1940

- *Some Investigations into Occurrence of Carcinoma of Breast with Special Reference to Ovarian Function. B. Heiberg and P. Heiberg.—p. 479.
Incarcerated Femoral Hernia with Simultaneous Incarceration of Appendix. H. B. Wulff.—p. 497.
Effects of Arterial Resection: Experimental Angiographic Study. J. P. Strömbeck.—p. 510.
Diaphragmatic Hernia. E. Bergenfeldt.—p. 519.
*Experimental Study of Role of Bone Marrow in Bone Regeneration. G. Levander.—p. 545.
Melorheostosis s. Osteosis Eburnisans Monomelica. A. Bertelsen.—p. 561.

Carcinoma of Breast and Ovarian Function.—According to the Heibergs there is disagreement about the nature of the relationship between the ovarian function and the development of carcinoma of the breast. They cite statistics on the incidence of mammary carcinoma in married and unmarried women, among others an investigation into the mortality from mammary carcinoma undertaken by the League of Nations in 1926. This report indicated that the death rate was higher in unmarried than in married women. Herrel demonstrated in 1937 that double oophorectomy exerts a protective influence against mammary carcinoma. In the same year Olck showed that the menopause occurs later in patients with mammary carcinoma than in other women. These three different clinical factors, high incidence in unmarried women and in those with a late menopause and the seemingly protective influence of castration, suggest that mammary cancer occurs most frequently in those in whom the menstrual cycles have been most frequent. The authors' inquiry into the proportion of unmarried to married women among those who died from mammary carcinoma in Denmark during the years 1931-1937 likewise indicates a higher mortality among unmarried than among married women. Clinical notes on 1,200 cases of mammary carcinoma from different hospitals in Copenhagen revealed a greater number of unmarried than of married women, compared with the relative proportions in the corresponding age groups of the general population. The menopause was found to occur later in women with mammary carcinoma, but it was not possible to establish a connection between previous gynecologic or endocrine disease and the development of carcinoma of the breast. The authors consider it possible that the predominance of mammary cancer in unmarried women may be due to the more frequent development of one particular type of carcinoma. They hope that microscopic studies will help in differentiating this and other types of carcinomas.

Bone Marrow in Regeneration of Bone.—Levander calls attention to a disagreement as to the role assumed by the bone marrow in the production of callus. He carried out two series of experiments in rabbits with grafting of bone marrow into soft tissues. All grafting was autoplasmic and made into the subcutaneous tissue. Twelve full grown rabbits were used in the first series of experiments. The period of observation varied from fourteen to fifty-eight days. In five cases bone formation was obtained. In the second series, carried out with the view of studying the histogenesis of the regenerated bone, young animals were used, the period of observation being from two to

eleven days. Morphologic analysis of the tissue reactions in this series showed that the grafted bone marrow cells had died. The new bone apparently arises from the mesenchymal tissue formed around the graft. It is the author's opinion that there are no preexisting osteoblasts in the bone marrow. Instead, the bone marrow stimulates bone formation through some inherent substance possessing the power of influencing the nonspecific mesenchymal tissue to form bone.

Nordisk Medicin, Gothenburg

5:269-318 (Feb. 17) 1940. Partial Index

Norsk Magasin for Lægevidenskaben

- Pellagra and Pellagrous Cutaneous Changes After Treatment with Vitamin B₁ and Vitamin C. O. Salvesen.—p. 279.
*Benign Gastric Tumors. H. Myhre.—p. 282.
Ovarian Hemorrhages. K. Harstad.—p. 286.
Problems in Treatment of Varices. S. Winge.—p. 289.
Pathogenicity of Endamoeba Histolytica: Preliminary Report. J. Bøe.—p. 292.
Establishment of Tumor Cells in Sternal Punctate. E. Poppe and L. Kreyberg.—p. 294.
Kala-Azar (Visceral Leishmaniasis). A. H. Brinchmann.—p. 297.

Benign Gastric Tumors.—According to Myhre, benign gastric tumors, which he classifies as epithelial and not epithelial, are relatively frequent. The epithelial tumors (adenomas and adenopapillomas) occur far more often than the not epithelial (myomas and numerous other forms). A few cases of aberrant pancreatic remnants in the stomach wall have been reported and are classified as not epithelial tumors. The epithelial tumors may be solitary or few. In some cases they line the stomach wall. Most of them enter under the concept of a polyp, where a number of the not epithelial forms also belong because of their macroscopic appearance. The polyp form is ascribed to the action of peristalsis on the tumor. Epithelial tumors are often accompanied by gastritis and anacidity and not infrequently undergo malignant degeneration. Other important symptoms of benign gastric tumors are hemorrhages, constriction and invagination of the stomach. Many cases are latent or partly so and are accidental discoveries at necropsy. Diagnosis must depend on x-ray examination, made with especially careful technique, and on gastroscopy. Some of the small tumors, also larger angiomas, when very soft, can be established only by gastroscopy. Four cases are described in which gastroscopy was done.

5:319-370 (Feb. 24) 1940

- *Functional Aortic Insufficiency. H. A. Salvesen.—p. 320.

Functional Aortic Insufficiency.—Salvesen believes that functional aortic insufficiency in hypertonic nephritis is far more frequent than was formerly supposed. There was a diastolic regurgitation murmur over the heart, usually over the apex or near it, in twelve (18.75 per cent) of the sixty-four fatal cases of azotemic uremia treated from 1925 to 1939. The valves were normal, and, while there was marked hypertrophy of the heart, no distention of the aorta or of the ostium aorta was demonstrable, and a relative insufficiency due to distension seems improbable. There were no peripheral manifestations of aortic insufficiency. A certain physiologic insufficiency is assumed to exist. The regurgitation murmur is interpreted as a functional insufficiency (pathologic increase of the physiologic insufficiency) dependent on the high pressure (pressure insufficiency).

Hospitaltidende

- Use of Cobra Toxin in Treatment of Neuralgias and Neurosyphilis. O. J. Nielsen.—p. 325.
Disinfection of Books. L. E. Walbum.—p. 328.
*Sternal Punctate in Idiopathic Thrombopenic Purpura (Morbus Maculosus Werlhof). C. Holten and I. Munkholm.—p. 332.

Sternal Punctate in Idiopathic Thrombopenic Purpura.—Holten and Munkholm examined the bone marrow of seven patients with idiopathic thrombopenic purpura, in two cases half a year and four years respectively after splenectomy, in one case shortly before and shortly after splenectomy and in four cases before splenectomy. No difference in the sternal punctate of the patients operated on and those not operated on could be demonstrated, and there were on the whole no deviations from the normal which could not be explained as lively regeneration due to the bleeding. No certain changes in the megakaryocytes were established.

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BETTER HEALTH FOR AMERICA

PRESIDENT'S ADDRESS

NATHAN B. VAN ETEN, M.D.
NEW YORK

Better health for America is the objective of the organized medical profession, which I have this year the honor to represent. Organized medicine is devoted to the public service and always has been in America since the first hospital was organized 188 years ago in Philadelphia for medical service to the sick poor. Today 116,500 of the physicians of the United States provide service to people of all social economic levels. These servants of the sick are on call twenty-four hours of every day.

Although the census taker insisted on recording me as working forty hours a week, there have been few days in the last fifty years in which I have not spent more than twelve hours in the service of people who asked for it. Beginning as a general practitioner with surgical training and a generous exposure to medical education, here and abroad—a fortuitous circumstance through the medium of an epidemic of typhoid fever—the demands of other infectious diseases and many calls to obstetric service gradually shaped my course into the field of internal medicine. This very ordinary experience has been shared by thousands of physicians who have been making available this type of public service with considerable satisfaction to the American people.

Organized medicine has been trying for the last ninety-four years to inspire all its members, who represent 85 per cent of the active practitioners in the United States, with high ideals and with a sense of their responsibility for good public service. It has often been obliged to censor the conduct of members who have been involved in quackery or questionable commercialism. It has often been obliged to take the field against unlicensed people who have mercilessly exploited the confidence of sick people who were suffering from incurable cancers or other fatal conditions. Some of these criminals have fought back and are still evading the law of the land, but in every instance the efforts of organized medicine on behalf of the people have been justified.

HEALTH EDUCATION OF THE PUBLIC

There would seem, however, to be no end to the necessity for organized medicine to exercise its educative crusades, because there seems to be no prospect that human credulity can be relieved from its beliefs in miraculous performances of conscienceless swindlers.

Ignorance is responsible for many tragedies. Organized medicine will not fulfil its functions as the protector and promoter of the public health unless it continues with greater enthusiasm and greater determination to educate the people in every phase of healthful living and without reservation warns them against the dangers of untreated communicable diseases. Plain talk in unpleasant language must not be shirked if necessary to shock ignorance into intelligence.

We must not take negative positions at a time like this when all sorts of wild theorists are shouting into the public ear. The people seem to be eager for health education and we must give it to them honestly and freely if we really want America to be a better and happier place in which to live.

EDUCATION OF THE PHYSICIAN

The practical education of the physician seems to take on new significance with the necessity for integrating physicians and laymen in informative campaigns to win support for the medical profession. Only in this way can we succeed in efforts to maintain the quality of medical service in the face of organized attacks by those who would substitute mass medicine for our present system.

I question the practicalities of the present pursuit of the degree of Doctor of Medicine, which follows a course of education which is too long and too short; a course which is more heavily loaded than is required for any other professional degree; too long to permit the student to enter practical life in his best years and too short to feed him the special fundamental knowledge he should possess before he steps into his public service.

Eight years of required college work brings the average student to 26 or 27 years of age before he leaves school. Then he must have two years of hospital work to learn the practical application of some of the facts he has learned. He will then be 29 or 30 years old before he may be permitted to earn his living through professional work. I do not believe that four years of medicine is too long or long enough, but I believe that some procedure should be evolved to bring the physician earlier into practice. Possibly he might be well prepared for his peculiar life by giving him six years of scientific and medical education, omitting all frills and specialty teaching and concentrating on practical general medicine, and minor surgery and traumatism and obstetrics, in order to give him the best preparation for the average care of the average patient.

Internships are most valuable opportunities to learn practical medicine. The patients are human beings who represent the average of clinical experience. If the intern is wise he will think of them as prototypes of the patients he hopes to have; he will study each one as an individual; he will try to learn something of his

biologic inheritance and his social experience; he will not classify him as a case of this or that disease but as a person suffering from a disease; he will not treat a disease but he will treat the patient. If he will always do this he will come to know people, and such knowledge will attract people to him.

Concentration of medical education into six years of scientific study will, of course, be criticized by the advocates of broad culture, which they claim is necessary to the joy of living and the understanding of human problems. I believe, however, that giving the physician as clear a vision of the physiology of life as possible would be the best equipment for him to apply as a scientific approach to the treatment of sick people, who will in their turn educate him in the real values of public service.

If the physician has a flexible intelligence he will, no doubt, follow an inclination toward some satisfactory hobby. A surprising number of physicians have found delight in the pursuit of the charms of music; many have recently exposed to public view their accomplishments in the fields of painting and sculpture; many have found leisure for the refreshment of outdoor sports and the pursuit of studies in natural history.

Culture will bless the physician if he desires it, but his chief satisfactions will come from his efforts to help people who are suffering from the incapacities of sickness.

THE SPECIALTIES

All of modern medicine has been developed within the last fifty years, so rapidly that it has been difficult if not impossible to include more than smatterings of the teaching of specialties in courses supposed to cover the entire field of medicine and surgery. New ideas have dazzled imagination with the brilliant prospects of solution of age old problems of diagnosis and cure. Students have been lured into following gleaming stars before they have firmly planted their own feet on firm foundations.

Probably inspired by romantic admiration of brilliant individuals, many interns enter hospitals with definite ideas of becoming specialists. A good many young physicians who take short cuts into specialism immediately after leaving their internships are lured by the dream of quick financial reward. They do not know that very few specialists have attained material success. They do not realize that the specialist has experienced greater difficulty in times of depression than the general practitioner.

It is claimed that the competent general practitioner can give satisfactory care to 85 per cent of all sick people. Competent general practitioners who have adapted themselves to the financial competence of their patients and have asked modest fees have had plenty of work during the last decade, while specialists have been idle because people were unable to pay them and because they were known to have limited themselves to very narrow fields.

Specialism has been overdone to the great injury of the specialist. Many unqualified practitioners have called themselves experts. The special societies have tried to raise the quality of specialization by setting up examining boards and are apparently meeting with success. They intend that only the really qualified may be permitted to identify themselves with special titles. These are doctor's doctors to whom difficult problems should be referred, but there are too many of them. I myself know expert men who are seriously embarrassed

and are very unhappy because they do not know how to step down from their conspicuous places. It is just as true now as it always has been that specialists are greatly helped by a knowledge of the whole man gained through years of general practice. It is axiomatic that a young doctor cannot begin at the top and therefore his education must be devised to prepare him to understand the average clinical problems which are presented by average patients.

DEMANDS CAUSED BY MODERN LIVING

Life has been so externalized by scientific disclosures of one objective revelation after another that the results have been accepted without inquiry as basic facts from which to step steadily forward from one civilizing accomplishment to another. Electric light and power, telephones, radios, modern plumbing, airplanes, automobiles, all are accepted as necessities of life. Everybody must use them to live contentedly. All must be items in the daily budget. Cheap moving picture entertainments are considered necessary satisfactions; all divisors of time and the vitality and the cost of living; all changing man's point of view; all educating him; all prodding him to sleepless activity and to superficiality. Man is too busy to think beyond the current moment; too busy to know his own children who are too busy to enjoy family life; too busy to remember the abiding precepts of religion; too busy to pass those satisfactions along to his children; all pursuing elusive pleasures of work or play which may lead them into early neuroses which make them difficult or impossible to live with.

Because modern speed has eliminated the horse and buggy doctor, his successor is confronted with the prospect of more difficult and newer educational demands.

Education of every physician must continue throughout his life. Many of the constituent bodies of the American Medical Association now carry on this work, in some counties enlisting the interest of more than 90 per cent of all resident physicians. Not only the city physician who has many opportunities for stimulating study but the most remote country physician is eagerly receptive of these efforts to bring to him the most modern ideas and technics of clinical medicine.

I have recently seen the graphic charts of postgraduate education in clinical medicine in Tennessee, where the response of physicians from remote mountainous districts as well as from the town was most remarkable. In many instances physicians brought their immediate clinical problems to the classes for study and consultation.

There are of course physicians who rarely study, who practice the kind of medicine they started with when they left the medical school. I believe this lazy attitude is more common in large cities where physicians have easily available institutional help which they may call on when they get beyond their depth than among country physicians, whose very existence depends on self reliance.

COUNTRY PRACTICE

Only competent physicians can succeed in country practice—ignorance and chicanery are quickly detected in places where the physician is conspicuous because he stands alone. The only safe place for incompetents is in cities, where they may hide in the crowds.

If young physicians who are fortified by strong characters, good education and real ability will seek small

towns or country fields, they will find plenty to do for real people and the satisfaction of living, which are denied them by the lack of all kinds of elbow room in big cities.

A good quality of medical service is needed in every part of our country. The United States presents every physical characteristic, mountains and valleys and arid lands and fertile lands, sea coasts, rivers, harbors, lakes, mines, oil fields, great crowded cities, small towns and farms, hot and cold climates, good and poor transportation, good and bad roads—all creating and modifying medical problems.

HOSPITALS

The people who live in this country represent every race, every religion and speak every tongue, but they are all human beings anatomically and physiologically the same, with the same necessities for physical care. All of them need available medical care for all ordinary illnesses and accessible places where they may be hospitalized for conditions which cannot be treated at home.

The President of the United States thought of such facilities in his new proposal to build small hospitals where they are needed. They do not need to be elaborate buildings, expensively furnished, but clean places where sick people may be sheltered and cared for by local physicians who are competent. The competence of the physician is more important than the quality of the building.

I have met Harrison of Arabia, who is the only physician in a large section of that country. He has a hospital which has no beds. His patients lie on concrete floors. He does an almost incredible amount of surgery with remarkably good results. He has no trained assistants, no trained nurses, very little material to work with, but he is himself a well educated and well trained surgeon. He is the hospital. He is a master craftsman.

Many country physicians possess comparable quality which has been developed through their ability to meet tragic emergencies with sole reliance on their own general knowledge. Many of them have developed overtones of personality which inspire confidence.

THE BASIS OF BETTER HEALTH

Better health for America would, of course, be promoted if medical help could be closely available to every citizen, but it is equally important that only well qualified medical help may be so provided. Medical organizations must set up criteria of competence of physicians who may be permitted to give medical and surgical care to our people. Hospitals facilitate good care, but the education of the physicians who administer it must be the concern of the councils of organized medicine as exemplified in the American Medical Association.

Planting physicians in industrial communities and subsidizing them by salaries or pay roll deductions has in some instances worked to the satisfaction of sick employees, and a fair quality of service has been delivered; but in other places incompetent or poorly equipped physicians held these places with a mere desire for subsistence rather than an ambition to bring good clinical medicine to people whose living standards were fixed as low as possible to satisfy the financial ambitions of their employers. These people had no personal choice of physician because none was available or permitted. Conditions comparable to a low type of European panel practice prevailed and provided poor medical service. Employment of physicians by membership societies,

lodges or other groups dominated by autocratic authority has frequently resulted merely in exploitation of the group by employing physicians at low salaries. For their services the members paid a periodic contribution and from this the management made a profit. Or perhaps a young physician who happened to be very competent but who needed the money was employed and exploited for an inordinate profit to the society or to some agent who had contracted to furnish medical service.

These promotions are going on and are attractive to speculators, who see an opportunity for rich material gain from enlisting people who desire to protect their future health through small periodic contributions. Where these organizations limit medical service to one physician or to a selected panel of physicians, the prospect of good medicine is not bright.

Many medical service plans involving free choice of physicians by the membership are in process of evolution and may be of great value as they merely limit the physician's fees according to commonly adopted schedules such as those provided by systems of workman's compensation.

Many hospital service plans promise ample satisfaction to subscribers and seem to be basically sound, provided they are honestly and intelligently administered.

All of these forms of delivering service to the sick need to be continuously studied by medical organizations in the interest of better health for all our people.

Although there is general harmony within our membership, there are occasional disagreements by small groups concerning policy which are generally met and satisfied in the regular process of the operations of county and state societies or in the deliberations of the national House of Delegates. There are sometimes small self-important groups which are unwilling to go through the routine county, state and national procedure and are so impatient that they jump the orderly freedom of fraternity, rebel against the thoughtful evolution of their great organization and parade their discontent in the public press.

It sometimes appears that they are selfishly dissatisfied with their own local environment and attempt to override the controlling opinions of their associates. They seem to be uncomfortable in any society. Their arguments are sometimes provocative and sometimes deserve the courteous attention they receive, but, unless they prevail, like spoiled children they sulk in their corners.

It sometimes appears that they are seekers after special privilege and desire special subsidies for their special operations.

These agitations and other unjustified technical appraisals of our public service have only served to strengthen our national organization, which has grown rapidly during the last four years as a responsive reaction among physicians to what they consider unjustified attacks.

Dividing the profession into groups of surgeons, internists, obstetricians, gynecologists, urologists, ophthalmologists, otologists, radiologists, pathologists is valuable for intensive scientific discussions and the results which may grow from them, but splitting the profession perpendicularly along the lines of creed or race or sociopolitical ideologies and developing rivalries and exaggerated desires for special privilege savors of the technics which have divided industrial workers into

classes, all fighting for what they consider their proportional rights. Such tendencies are subversive of the strength and effectiveness of the great body of American medicine, which should present a solid front in all efforts to promote public service in American health.

PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

You are all familiar with the text of the new platform of the American Medical Association. Every word of it is objective. It denies the allegation that the Association is reactionary and static and antisocial.

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Nonprotein Nitrogen.—The nonprotein nitrogen represents all of the nitrogenous constituents of the protein-free blood filtrate. The most important of these is urea. With the exception of the amino acids, these substances are end products of protein and nucleoprotein metabolism. Normally the substances are excreted at such a rate that their concentration in the blood is maintained approximately within the indicated limits, but with the development of renal insufficiency their excretion is diminished and hence they accumulate in the blood. Nonprotein nitrogen values in excess of 40 mg. per hundred cubic centimeters are indicative of nitrogen retention, and even figures above 35 mg. are somewhat abnormal. Since the consumption of large quantities of protein may cause a postprandial rise in nonprotein nitrogen, this factor should be kept in mind. In individuals from whom one kidney has been removed the nonprotein nitrogen tends to be somewhat elevated (40-45 mg.) even though the remaining kidney is entirely normal.—Bodansky, Meyer, and Bodansky, Oscar: *Biochemistry of Disease*, New York, Macmillan Company, 1940.

THE MANAGEMENT OF MECHANICAL OBSTRUCTION OF THE SMALL INTESTINE

DUE TO BANDS AND ADHESIONS

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Among important surgical conditions, none has been given more thought and attention, in recent years, than acute intestinal obstruction. Its frequency and persistently high mortality account for this bad eminence. The work of Wangenstein¹ and others has stimulated efforts to place the management of this disease on a more scientific basis.

The large public hospitals serve as unique clinical laboratories for the investigation of controversial medical and surgical treatments. Each surgeon bases his indications and procedures on his individual judgment and experience. Old and new methods are carried out simultaneously on identical groups of patients. Results of differing forms of treatment may be compared with a considerable degree of accuracy.

Study of the literature presents confusing and often paradoxical mortality reports for this disease.² Most of the reports group together all the acute mechanical obstructions. This study is limited to obstructions due to bands and adhesions. By limiting our study, we hope to clarify part of the picture.

Immediate operation has been the accepted indication for this type of obstruction either because strangulation is diagnosed or it is feared that strangulation is impending. A very considerable proportion of these patients, however, are suffering from nonstrangulatory ileus which can be relieved by nonoperative management. A proper selection of cases for this therapeutic trial demands careful study and a correct diagnosis. The combination of diagnostic and therapeutic maneuvers to be described has been used at the Cook County Hospital for several years. It is now followed in all but a few of the surgical services. The resident staff has given the procedures almost unanimous approval.

When the small intestine becomes involved in bands or adhesions following laparotomy or inflammation within the abdomen, a mild chronic obstruction may result without the patient becoming aware of its presence. The fixation or kinking of the bowel impedes the flow of intestinal contents. This mild impairment is compensated by thickening of the muscle coats. Symptoms appear only when the lumen of such a damaged bowel becomes blocked by a large meal of relatively indigestible foods such as coarse vegetables or dried fruits. An obturation ileus is superimposed on the chronic obstruction. In its early stages this acute obstruction often is incomplete. Even in the late neglected cases, a large proportion are nonstrangulatory. A previous laparotomy or a clear history of peritoneal inflammation without operation justifies the presump-

From the Department of Surgery of the Cook County Hospital.
1. Wangenstein, O. H.: *The Early Diagnosis of Acute Obstruction and Treatment by Nasal Catheter Suction Siphonage*, West. J. Surg. 40: 1 (Jan.) 1932.
2. Boyce, F. F., and McFetridge, E. M.: *An Analysis of 715 Cases of Acute Intestinal Obstruction*, South. Surgeon 6: 109 (April) 1937.
Fey, Amos, and Cubbins, W. R.: *Acute Mechanical Intestinal Obstruction: Mortality With or Without Enterostomies*, Surg., Gynec. & Obst. 60: 738 (March) 1935.
Van Beuren, F. T., Jr., and Smith, B. C.: *Mortality in Acute Ileus*, Ann. Surg. 106: 752 (Oct.) 1937.

tion of adhesion ileus in such cases. However, one out of every seven cases in our series gave no history of previous abdominal complaint.

The differential diagnosis of the many conditions which might be confused with acute mechanical obstruction is well understood by careful observers and need not be discussed here. Locating the point of obstruction is important, as obstructions of the large bowel have only rarely been benefited by decompression maneuvers.

An attempt has been made to classify the cases used in this study on the basis of apparent severity at the time of admission. We have divided them into four groups, 1, 2, 3 and 4 plus. For this purpose the history of onset, frequency of the vomiting, severity of the colic and abdominal pain, amount of distention and degree of the obstipation were important criteria. Of much greater value were the examination of the abdomen, especially with the stethoscope, and the use of the x-rays, the stomach tube and the 2 quart enema.

Percussion of the abdomen yields a tympanitic note if distention is present. When the obstruction is in the small intestine, flatness is often noted in the right flank as the result of collapsed ascending colon and terminal ileum. Auscultation yields a pathognomonic sign of incomplete obstruction—obstruction borborygmus. These sounds result from vigorous activity of hypertrophied bowel when distended with gas or fluid. Their resonant or ringing timbre is characteristic whether the sounds are loud and booming or are only heard as a silvery whisper. They are heard only in the presence of some abdominal distention.³ Normal peristaltic sounds are fairly constant and are evenly timed. They become louder in the presence of slight obstruction. In the presence of greater obstruction there are short silent intervals followed by a rush of bubbling, resonant ringing sounds and then another period of silence. As the obstruction becomes more complete, the rushes become fewer and fainter and the silent intervals longer. The sounds also become higher pitched and may finally survive only as silvery metallic tinkles. With complete obstruction, the abdomen is silent. Abdominal tenderness is usually absent or mild as long as the obstruction remains incomplete. Strangulation is to be suspected when the onset is associated with intensely severe colics, when fever appears early and the course is rapidly progressive. In such cases abdominal tenderness is diffuse and more marked, rebound tenderness is often present, and there is considerable tenseness of the abdominal wall. Vomiting is early and violent, and the peristaltic sounds rapidly disappear.

The use of the fluoroscope and of x-ray films aids greatly in noting gas patterns and fluid levels as well as pneumoperitoneum, extra-enteric opacities and pathologic changes in the chest. It differentiates large from small bowel obstructions. The reappearance of gas in the colon is one of the earliest signs of relaxation of the obstruction.⁴

Enemas are used for diagnostic and therapeutic purposes at the same time. A 2 quart soapsuds enema may loosen a food or fecal plug as high up as the lower part of the ileum. These enemas also serve to cleanse the colon for subsequent fluoroscopy. The full amount

will rarely be taken when the obstruction is in the large bowel, especially if in the left side of the colon, where 85 per cent or more of such obstructions occur. The return enema is inspected for feces and blood (including the benzidine test). Subsequent enemas are watched for the appearance of the liquid petrolatum which has been previously administered by mouth and for flatus. Great care must be exercised not to administer air bubbles with the enema.

Criteria for classification of the patients into groups were as follows:

Group 1 plus had moderate incomplete obstructions, mild pains, slight distention and hyperperistalsis. They were free from abdominal tenderness and had normal temperatures.

Group 2 plus had marked but still definitely incomplete obstructions. They had moderate pains, vomiting and distention. There was slight abdominal tenderness, and auscultation revealed short silent periods alternating with peristaltic rushes and low pitched bubbling borborygmus. There was obstipation but no fever.

Group 3 plus were judged to be suffering from almost complete obstruction. There were vomiting, distention and marked colicky pains. Moderate abdominal tenderness was often present. The silent periods on auscultation were longer, there were fewer rushes, and the borborygmi were higher pitched and tinkling. Temperatures were normal or only slightly elevated.

Group 4 plus were definitely suffering from complete obstruction. This group included most of the strangulations. Pain was severe and persistent from the onset. Tympanites, persistent vomiting, and direct and rebound abdominal tenderness were present. Muscle tenseness simulated a true abdominal rigidity. The abdomen was completely silent except that a few high-pitched tinkling splashes could be heard on succussion. Occasionally a tense loop of bowel could be felt. The temperature was frequently elevated.

This group classification is tentative as far as the management of the cases is concerned. We have held to it in studying the progress of the patients and the end results of the treatment.

THERAPEUTIC MANAGEMENT

On admission, the patient's stomach is washed out by means of a large Ewald tube. From 2 to 4 ounces of liquid petrolatum is placed in the stomach before removing the tube. In slight obstruction, a substantial respite from vomiting follows. A 2 quart soapsuds enema is then given if an acute inflammatory condition within the abdomen can be ruled out. The patient is then examined by means of the fluoroscope.

With recurrence of vomiting, the Ewald tube is again used, or the Levine tube is inserted for continuous suction. Either method is effective in obtaining some decompression of the intestine. The nasal tube was used in only about half of our cases—the more severe ones, generally. Its use requires careful and constant supervision by a trained corps of attendants. Decompression relaxes the tenseness of the intestinal kinks and may possibly permit loops to slip out from under constricting bands. Exploration is facilitated if laparotomy becomes necessary later.

In the presence of vomiting, parenteral fluids are administered up to 4 liters daily, using 2.5 per cent dextrose in 0.45 per cent sodium chloride solution. These proportions result in an isotonic mixture. The specific gravity of the urine should be kept below 1.025 and the output maintained at or above 600 cc. in twenty-four hours. Blood transfusions are given before operation when indicated.

A heat cradle is placed over the abdomen. Morphine is allowed occasionally, but not to the clouding of the clinical picture. Liquid petrolatum is given again if

3. Vaughan, R. T., and Thorek, Philip: *Auscultation of the Abdomen*, in Nelson Loose-Leaf Living Surgery, New York, Thomas Nelson & Sons, 1938, vol. 5, p. 42.

4. Ginzburg, Leon: X-Ray Diagnosis Without Contrast Media, *Ann. Surg.* 96: 368 (Sept.) 1932. Rendich, R. A., and Abrams, H. S.: Evaluation of Roentgen Diagnosis in Intestinal Obstruction, *Ann. Surg.* 102: 1040 (Dec.) 1935. Swenson, P. C., and Hibbard, J. S.: Roentgenographic Manifestations of Intestinal Obstruction, *Arch. Surg.* 25: 578 (Sept.) 1932.

vomited, but only on the withdrawal of the Ewald or Levine tube. If oil appears in the enema, administration of the oil may be repeated daily, serving only to lubricate the bowel.

The period of therapeutic trial is continued if strangulation can be reasonably excluded. In cases of

and operation must be considered again. The high mortality with these delayed operations must be balanced against the fact that persistent suction, oil and enemas are sometimes necessary for four or five days before oil appears in the enema and the patient is definitely relieved.

TABLE 1.—Subsidence in Nonoperative Cases		
Duration Before Subsidence	Number of Cases	
From 4 to 12 hours.....	51	
From 13 to 24 hours.....	48	
From 25 to 30 hours.....	15	
From 37 to 48 hours.....	13	
From 49 to 72 hours.....	8	
From 73 to 96 hours.....	3	
From 97 to 120 hours.....	3	
Total.....	141	

TABLE 2.—Summary of Mortality—Acute Intestinal Obstruction			
	Cases	Deaths	Mortality
Admissions*	262	57	21.7%
Treated cases	247	42	17.0%
Receiving nonoperative treatment only	145	10	6.9%
Operative cases†	102	32	33.0%
Operation within first 12 hours after admission	55	15	27.0%
Operation after 12 or more hours of therapeutic trial	47	18	38.0%
All cases given 12 hours or more of therapeutic trial	190	27	14.0%

* Including 15 patients moribund on admission.
† Including 6 interval operations after relief of obstruction.

strangulation most of the steps enumerated may be carried out in preparation for an early operation. In nonstrangulatory cases, if nursing facilities permit, the 2 quart enema is repeated every four hours or even more often. The liquid petrolatum normally reaches the colon in four hours. Its appearance is delayed in the presence of incomplete obstructions to twelve hours or even longer. Appearance of the oil in the expelled enema favors a continuation of conservative management. The other abdominal signs will also recede in the favorable cases. (A Richter type of hernia might show improvement for a time but rarely will be overlooked in a careful examination.)

At the end of twelve hours, a second examination is made under the fluoroscope. The patient is now well prepared for the operation, and the diagnostic work-up is fairly complete. The patients with strangulation, not yet operated on, will have progressed unfavorably in spite of the management described. They will now present the classic picture of a silent abdomen, rising temperature, abdominal tenderness and rebound tenderness. They should be operated on without further delay. The simple obstructions (obturations) tend to improve promptly or at least are no worse after twelve hours of this management. Vomiting lessens, intestinal sounds become less pathologic and the borborygmi become more booming and abundant. The silent intervals become shorter, and eventually gas and fecal material will appear in the enemas. We are encouraged to go on.

Table 1 shows the duration of obstruction in our nonoperative cases before the symptoms subsided.

It is to be noted that, in 70 per cent of the cases, symptoms subsided in the first twenty-four hours and, in 80 per cent, in the first thirty-six hours. Progress may be uneven and setbacks may occur. This is especially true when symptoms recur each time that suction is discontinued. The obturation has not been released

RESULTS

This study includes all patients found to be suffering from intestinal obstruction due to adhesions or bands who were admitted to the Cook County Hospital during the years 1935, 1936 and 1937.

Table 2 records the mortality under various headings. The fifteen moribund patients died within fifteen minutes to twelve hours after entrance and received no significant treatment. Six patients submitted to interval operations after complete recovery from their obstructions. There were no postoperative deaths among these interval operations.

Table 3 indicates the operative mortality in relation to the duration of symptoms before operation.

Table 4 shows the mortality based on severity of the symptoms on admission.

No marked correlation was shown between the duration of the disease and the severity of the symptoms noted on admission. Table 5 illustrates this.

The clinical diagnosis of strangulation was checked against the observations at operation. This complication was diagnosed or suspected in fifty-four instances and was found in twenty-eight cases, or 52 per cent. The other twenty-six patients were found to be suffering from nonstrangulatory obstruction. As the patients in

TABLE 3.—Operative Mortality in Relation to Duration of Symptoms

Duration Before Operation	Cases	Deaths	Mortality
From 0 to 12 hours.....	2	1	50%
From 13 to 24 hours.....	9	3	33%
From 25 to 48 hours.....	12	1	8%
From 49 to 72 hours.....	20	3	15%
4, 5 and 6 days.....	32	12	37%
7 days and longer.....	27	12	44%
Total.....	102	32	31.4%

TABLE 4.—Mortality Based on Severity of Symptoms on Admission

Group	Description	Cases	Deaths	Mortality
1+	All nonoperative	12	0	0%
2+	Nonoperative except 6 interval operations	53	0	0%
	Total all cases	65	11	12.5%
3+	a. Nonoperative cases	53	3	6.0%
	b. All operative cases	35	8	23.0%
	1. Operation within 12 hours.....	13	2	15.0%
	2. Operation after 12 hours or more of therapeutic trial	22	6	27.0%
4+	All cases	109	46	42.2%
	Moribund	15	15	100.0%
	Treated	94	31	33.0%
	a. Nonoperative	33	7	21.0%
	b. All operative	61	24	40.0%
	1. Operation within 12 hours.....	42	14	33.0%
	2. Operation after 12 hours or more of therapeutic trial	19	10	51.0%

the strangulatory groups received almost immediate surgical attention (only six were in the hospital longer than twelve hours before operation) they furnish an indication of what might be called the minimal mortality to be expected from immediate [sic] operation. The nonstrangulatory patients in this group had a mortality of 25 per cent, and the patients showing strangulation at operation had a mortality of 30 per cent. Three patients with a diagnosis of strangulation entered the

hospital with diffuse general peritonitis. They all died without any attempt at operative intervention.

The clinical diagnosis of simple obstruction was also checked with the operative diagnosis whenever possible. Table 6 illustrates the observations, particularly on operation.

TABLE 5.—*Severity of Symptoms in Relation to Duration of Disease*

Duration on Admission	1+	2+	3+	4+
First 24 hours after onset...	6	21	28	17
Duration from 1 to 3 days...	3	14	29	46
Duration 4 or more days....	3	18	31	46
Total cases	12	53	88	109
Percentage	4.8	20.2	33.0	42.0

TABLE 6.—*Analysis of Cases Diagnosed Simple (Nonstrangulatory) Obstruction*

	Cases	Deaths	Mortality
All cases diagnosed.....	193	25	13.0%
Patients treated conservatively.....	142	7	4.9%
Patients operated on.....	51	18	35.3%
No strangulation found.....	46	16	34.8%
Strangulation found.....	5	2	40.0%
Patients operated on in first 12 hours...	12	3	25.0%
Operation after 12 to 36 hours of therapeutic trial	17	7	41.0%
Operation after more than 36 hours of therapeutic trial	16	8	50.0%
Interval operations	6	0	0%

This table indicates clearly the mounting mortality rate when operation is finally performed after a prolonged therapeutic trial. When the patients with and without operation were studied on the basis of time intervals, and patients operated on were grouped with those who recovered under nonoperative management during the same period, the mortality was much more favorable. Such a grouping (table 7) has a more practical application when one is studying individual cases.

This greatly improved mortality is due to the large number of patients who responded to conservative management and went on to recovery without operation.

Ten patients died under conservative management in addition to the fifteen patients moribund on admission. Three of these deaths were from hypostatic bronchopneumonia in patients over 70 years of age. All three had been relieved of their obstruction for from one to several days before the pneumonia developed. One patient who appeared moribund on admission lived thirty-six hours under routine nonoperative management. One entered with a cardiac decompensation which dominated the picture throughout. One patient was irrational and violently uncooperative owing to cerebrospinal syphilis. Deaths of the remaining four patients may or may not have been avoidable. Two had no abdominal scars of previous operation. These two and a third entered with diffuse peritonitis which masked the obstruction. Two of the latter went to autopsy with a clinical diagnosis of salpingitic peritonitis. The fourth seemed to improve so promptly that strangulation was not seriously considered until peritonitis developed.

A previous abdominal operation was recorded in 203 cases and twenty-three others gave histories of peritoneal inflammations which subsided without any operation. The remaining thirty-six cases had no history of any previous abdominal complaint. In the male group the previous operation was appendicitis in 66.2 per cent

and one to five cases each of the following were noted among the remaining patients: gunshot, stab wound, closed injury of the abdomen, cholecystitis, ruptured peptic ulcer, ventral, inguinal and umbilical hernia. Nine males not operated on gave a history of attacks of appendicitis and one each of closed injury and of incarcerated hernia. Among six males without any previous history to account for their adhesions, two cases each were found to be due to terminal ileitis, appendicitis and Meckel's diverticulitis. Among female patients, 62.8 per cent gave a history of pelvic laparotomy and 22.4 per cent of operation for appendicitis. The remaining operations were for conditions similar to those observed in males. Six female patients gave a history of salpingitis, five of appendicitis and one of closed injury to the abdomen, all without operation. Among six females without previous history of abdominal complaint, tubal adhesions were found in three and endometrioma of the ileum, fibromyoma of the uterus and terminal ileitis in one each. The interval between the primary operation and the onset of obstruction varied from two weeks to twenty-five years in both sexes. No age group had any undue proportion of cases.

OPERATIVE MANAGEMENT

Exploratory operation was performed mainly for strangulation or for suspicion of strangulation. "Blind" ileostomy was done three times and only in the most desperate cases. All three patients died. Extensive incisions were usually unnecessary, the information obtained by careful preoperative study usually limiting the exploration to one or at most two quadrants of the abdomen. Evisceration of distended loops generally was avoided, the obstructing mass being usually identified by passing the hand into the abdomen. Small necrotic patches or discolored constriction rings were

TABLE 7.—*Cases Treated as Simple Obstructions*

	1st 12 Hrs.	12-36 Hrs.	After 36 Hrs.	Totals
Subsided without operation	51	63	27	141
Nonoperative deaths.....	0	4	3	7
Operation and recovery.....	10	9	8	27
Operation and death.....	3	7	8	18
Total cases.....	64	83	46	193
Total deaths.....	3	11	11	25
Mortality	4.7%	13.3%	23.9%	13.0%

TABLE 8.—*Operative Procedures and Mortality*

Operative Maneuver	Cases	Deaths	Mortality
Cutting of bands or adhesions.....	76	16	21%
Exteriorization and immediate resection	8	7	87%
Resection and primary anastomosis....	4	1	25%
Side to side anastomosis.....	3	1	33%
Adhesions cut and ileostomy.....	3	1	33%
Ileostomy without exploration.....	3	3	100%
Resection-gangrenous diverticulum (Meckel's)	1	0	0%
Dried fruit bolus pushed into cecum....	1	0	0%

inverted by Lembert suture. Side to side anastomosis was done in three cases for detouring obstructed loops, caught in an inextricable tangle. Most of the maneuvers consisted merely of cutting bands and releasing constricted loops. In the presence of gangrene of the bowel, exteriorization was the procedure of choice. The incision was then closed around the base of the loop and a delayed or immediate resection was performed, or the loop was drained immediately by catheter. Primary anastomosis after resection was reserved for the earliest cases with a minimum of distention. Ether was used

at some stage of the operation in 75 per cent of the cases; nitrous oxide was used alone in ten cases, local anesthesia in four cases and spinal anesthesia in thirteen cases. The mortality with spinal anesthesia was 30 per cent and with the other anesthetics was somewhat higher.

Table 8 lists the operative procedures and mortality.

COMMENT

Before the development of careful auscultation of the abdomen, x-ray studies and the continuous suction siphonage of Wangenstein, nonoperative management had a very limited field. It was followed for only 20 per cent of the patients admitted to the Cook County Hospital. Among 505 cases reported by Meyer and Spivack from the Cook County Hospital in 1934 there were 105 cases which subsided without operation, with the use of repeated gastric lavage, liquid petrolatum by mouth, and soapsuds enemas. In the three year period from 1935 to 1938, on which this report is based, almost 60 per cent of adhesion obstructions subsided under nonoperative management. The plan of management outlined has been accepted by all but a few surgical services. These few still favor the policy of immediate operation in all cases.

The mortality of surgically treated obstructions up to 1935 under the policy of prompt operation varied from 31 to 50 per cent (Vick, Vidgoff, Franken, Rentschler). In the Cook County Hospital a mortality of from 45 to 48 per cent was reported by Meyer and Spivack⁵ and by Cubbins and Fey.⁶ Although these statistics included all types of mechanical ileus, from 70 to 74 per cent of the obstructions were due to adhesions and bands.

By treating 60 per cent of our patients by nonoperative measures, instead of 20 per cent as in the previous series, we have removed from the surgically treated group forty patients of each 100 admitted. As the mortality rate for surgical cases was previously from 45 to 48 per cent, approximately half of these patients have been saved, i. e. twenty lives in each hundred cases. Deducting the loss of four lives among each 100 cases treated conservatively, there remains a net gain of sixteen lives per hundred cases.

Forty-four per cent of the patients were operated on with a mortality of 33 per cent. While this rate is still high, it compares favorably with published reports of cases under immediate operative management. We may expect improvement from the more general use of blood transfusions, especially in the cases of strangulation, and from the more frequent use of spinal anesthesia. It is probable that 10 per cent of the patients—twenty-four of the ninety-six operated on—would not have been operated on at all if the therapeutic trial maneuvers had been in use in all the surgical services of the hospital. There were nine deaths among these twenty-four patients, although three of the deaths from hypostatic pneumonia were probably unavoidable. Sixteen other patients grew worse under conservative management persisted in for more than thirty-six hours. At operation only one showed a strangulated bowel, but the mortality of this group was 50 per cent. With experience in handling these persistent obstructions, conservative treatment might be continued for a longer time before resorting to operation.

One advantage of the plan of diagnosis and management herein outlined has no statistical exhibit. It abets accurate diagnosis. Many patients admitted as having intestinal obstruction are found, after the diagnostic routine and brief period of observation, to have non-operative ileus due to uremia, pneumonia, coronary thrombosis, lead colic, gastric crisis, salpingitis or puerperal infection. They may have questionable operative lesions such as appendical abscess, acute cholecystitis, acute pancreatitis or colon diverticulitis, requiring further observation or surgical attention directed to the primary lesion. The patients thus saved from harmful operation far outnumber the few with obstruction who might have been better off under the policy of immediate operation.

As shown in table 5, no close correlation was established between the duration of the disease and the mortality. More important factors were the completeness of the obstruction and the presence or absence of strangulation. The severity of the symptoms on admission depended principally on the type of pathologic condition present. It is perhaps of special importance to note that twenty-six of the ninety-four patients with complete obstruction in group 4 plus improved so promptly under preliminary preparation that operation became unnecessary. However, fourteen of the eighty-eight with almost complete obstruction in group 3 plus became worse under therapeutic trial and were finally operated on because strangulation was feared. None of the patients operated on had a second operation in this hospital for recurrence during the entire three year period of study.

The amount of time and close attention that this type of case demands is far greater than is required for most abdominal conditions. Only by the closest observation and cooperation on the part of the resident staff, nurses and attendants has improvement in results been achieved. A special team devoted entirely to the problem of intestinal obstruction and covering all wards in the hospital may be expected to reduce the mortality still further.

CONCLUSIONS

1. Under the plan of diagnosis and management here presented, 56 per cent of patients with acute intestinal obstruction due to bands and adhesions recovered without operation.
2. Although the mortality of patients coming to operation was 31 per cent, the total mortality of all treated patients (including surgical) was 17 per cent.
3. In 80 per cent of the nonsurgical group obstructions subsided within thirty-six hours; the remainder required two, three, four or five days before their obstructions were relieved.
4. Strangulation was found in only 52 per cent of the obstructions so diagnosed or suspected before operation. The remainder proved to be simple obstructions.
5. The type of pathologic condition is the most important factor in the mortality and in the severity of the symptoms on admission. The duration of the obstruction is of secondary importance.
6. A minimal operative mortality of 25 per cent in simple obstruction, operated on immediately, and of 30 per cent in strangulatory cases, also with operation on entrance, is indicated from this study.
7. A more general application of the management here presented may be expected to reduce the number of patients requiring surgical intervention to about 30 per cent of those entering the hospital with this disease.

5. Meyer, K. A., and Spivack, J. L.: Intestinal Obstruction: Analysis of 505 Cases from the Records of the Cook County Hospital, *Ann. Surg.* 100: 148 (July) 1934.
6. Cubbins, W. R., and Fey, Amos: Acute Mechanical Obstruction, *Illinois M. J.* 65: 203 (March) 1934.

PECTIN-AGAR FOR DIARRHEA IN
INFANTS AND THE NEWBORNA RATIONAL, SIMPLE AND EFFECTIVE
TREATMENT

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DETROIT
AND

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OMAHA

Since the earlier reports¹ on the use of pectin-agar feedings in diarrhea of infants, continued experience has added much to our knowledge of its use and effectiveness. The treatment is safe and valuable in enteritis of the newborn, and it is also a simple method, adaptable for home use, in treating older infants and children. The mixture is made by cooking a soluble prepared powder in milk or other suitable liquid. The composite action of a high carbohydrate food containing pectin and agar results in an easily digested nutritious food which mechanically produces formed stools, favors normal peristalsis, absorbs and adsorbs bacteria with their toxins, systemically combats ketosis, protein catabolism and dehydration, chemically combines with certain bacterial toxins and catabolic body wastes, and locally promotes healing. A few remarks on rationale, application of simple modes of use and the effectiveness of the treatment follow.

PREPARATION AND ADMINISTRATION

Because of certain disadvantages found in the use of the apple diet² it seemed desirable to design a preparation retaining the good qualities inherent in apple therapy and overcome, if possible, the disadvantages. The only two elements of apple diets proved to have value are pectin and cellulose.³ With this in mind the following preparation⁴ was designed: pectin 6.3 per cent, agar 4.3 per cent and dextrimaltose 89.4 per cent. One cup or 8 ounces by volume of the resultant powder equals approximately 480 calories. This basic mixture lends itself well to the making of diets particularly designed for nurslings and young children respectively.

In preparing a formula for nurslings 1 cup of the powder is cooked ten minutes in a double boiler with 24 ounces of milk. While still hot the desired amount is poured into nursing bottles. After cooking a gel results calorically equal in milk and added carbohydrate, each ounce of which contains 40 calories. On being rewarmed and shaken the preparation easily feeds through a nipple with an enlarged opening. Newborn babies take this formula with ease and it is well tolerated and retained. The usual feeding schedule is continued. Since the number of calories per ounce in this mixture is twice that usually given, the volume offered is reduced to about one half and the difference is made up by giving water between feedings. The end result

in milk, water and carbohydrate administration is the same as when mixtures containing 20 calories per ounce are given. By preparing the pectin-agar without water it is possible to produce the desired gel state and still maintain a well proportioned adequate food. The thick, low volume feeding reduces the tendency to vomit. The prepared formula does not give up liquids readily, so hydration must be assured by giving oral or parenteral fluids between feedings.

For children from 6 months to 2 years of age, one cup or 8 ounces by volume of the powder is cooked for ten minutes in a double boiler with 16 ounces of milk or other suitable liquid. If fruit juices are used the preparation is cooked in a part of the liquid, the remainder being added immediately after cooking to retain the natural flavor. Vanilla, cocoa, bitter chocolate, fruit and other foods may be added to suit the taste (Washburn¹). To rewarm place the container of food in hot water. The preparation may be frozen for children who prefer it cold.

The treatment of diarrheas at any age consists of limiting all intake to the pectin-agar formula and water until the stools are formed. The therapeutic result is good whether large or small amounts are taken, the bulk of the stool depending on the intake. The older infants and children are allowed as much of the food as desired. After the bowel movements are free from blood, pus and mucus and are formed, the best practice with nurslings is gradually to replace the pectin-agar feeding with a formula in which calories from milk and added carbohydrate are equal and the volume of milk equals the volume of water, the resultant mixture containing 20 calories per ounce, or with milk and carbohydrate in a proportion similar to that found in the pectin-agar formula for nurslings. In a few days the infant is returned to a standard milk formula approximating a milk-carbohydrate caloric ratio of 2:1. Another method of transition is gradually to decrease the amount of pectin-agar mixture and add water when preparing the formula. After the proportions become one-half cup of the powder (240 calories), 24 ounces of milk (480 calories) and 12 ounces of water, the mixture contains 20 calories per ounce with a milk-carbohydrate ratio of 2:1. At this time the special formula may be replaced with a standard milk mixture. In older children transition is made by gradually replacing pectin-agar feedings with gelatin desserts, toast, jelly, banana, apple, baked potato, cottage cheese and lean meat. Milk, vegetable and cereal should be added with caution.

RESULTS IN DIARRHEA OF THE NEWBORN

The accompanying table shows the results of treating a series of twenty-three newborn infants with enteritis. As a whole these infants were not systemically very ill, the maximum temperature being 102.4 F. rectally and this probably in part from dehydration. The single constant feature was the presence of bright red blood in the feces varying in amount from slight streaking of the stools to gross blood and mucus. On proctoscopic examination in some instances, bleeding points about the size of pinheads appeared on an otherwise apparently normal mucosa. A mild diarrhea occurred in all but three infants. None of the stools contained pus. These babies were fretful and on occasion took feedings poorly; however, weight gain was satisfactory for the neonatal period, including one premature infant (S. L.). All infants treated with pectin-agar had soft stools within forty-eight hours, while the remainder of

From the Henry Ford Hospital, Detroit.

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2. Tompkins, C. A.: Infant Diarrhea with Special Reference to Apple Therapy, *J. Indiana M. A.* 28: 278 (June) 1935.

3. Malyoth, Günther: What is the Action of the Apple Diet? *Klin. Wchnschr.* 13: 51 (Jan. 13) 1934.

4. This is a modification of the preparation cited in the original communication.¹

the group continued to have liquid stools for about one week or more. The table shows the definite difference in the number of liquid evacuations in the infants treated with the pectin-agar formulas. While the time factor might account for a decrease in watery stools as a normal course of events, all the infants were placed

during which time the baby gained 150 Gm. This observation has been repeated many times among older infants with a decrease from over twenty-five liquid stools in twenty-four hours to three or four soft ones the following day. The average percentage of the stools which were liquid in the group on standard feedings

Individual Case Summaries

Patient	Date of Birth	Date of Onset*	Date of Discharge	Weight at Birth, Gm.	Weight at Discharge, Gm.	Clinical Classification†	Diet After Onset	Stools				Maximum Temperature, F.	Stool Culture	Comment
								Percentage Liquid on Cow's Milk, Pectin-Agar and Breast Milk	Maximum Number Daily on Cow's Milk, Pectin-Agar and Breast Milk	Number of Days Until All Soft				
M. F.	1/17	1/25	1/31	3,210	3,160	B	Breast milk to 1/25; breast milk and protein milk to 1/27; cow's milk to 1/31	100	6	7	100.4	.....	Home with liquid stools; one saline clysis 120 cc.
J. S.	1/22	1/20	1/31	3,285	3,330	A	Cow's milk to discharge	50	6	..	98.2	.....	Flecks of blood seen once
L. W.	1/22	1/30	2/ 1	3,020	3,015	B	Breast milk and cow's milk	50	5	2	99.2	.....	Liquid stools only one day
J. B.	1/24	2/ 7	2/ 9	2,320	2,438	A	.....	0	..	..	98.2	.....	Home with liquid stools
C. C.	1/29	2/ 7	2/ 0	3,535	3,543	B	Cow's milk to discharge	..	6	1	98.6	Streptococcus	Home with liquid stools	
P. K.	1/31	2/ 7	2/10	3,090	3,205	B	Breast milk to discharge	60	7	3	99.4	Streptococcus	Home with liquid stools	
H. S.	1/31	2/ 7	2/10	4,465	4,765	B	Breast milk to discharge	65	6	11	98.4	Streptococcus	Very slight diarrhea	
J. M.	2/12	2/21	2/22	3,525	3,555	B	Breast milk and cow's milk	..	3	1	99.0	.....	Very slight diarrhea
A. S.	2/12	2/19	2/25	3,300	3,180	A	Cow's milk	0	6	..	99.6	B. cloacae	Home with liquid stools	
W. M.	2/12	2/19	3/ 5	2,890	3,120	B	Cow's milk	25	10	14	101.0	B. coli	Home with liquid stools	
B. G.	2/12	2/21	2/26	3,550	3,710	B	Breast milk and cow's milk	35	9	7	99.6	B. coli	Home with liquid stools	
J. C.	2/13	2/10	2/23	3,155	3,500	B	Breast milk and cow's milk	30	6	2	98.6	.....	Very slight diarrhea
J. S.	2/15	2/26	3/ 5	2,130	2,280	B	Cow's milk	28	7	2	100.6	.....	Total saline per clysis 250 cc.
R. L.	1/25	2/ 7	2/12	4,050	4,150	O	Cow's milk to 2/9 Pectin-agar formula to 2/11	50	11	4	99.8	Streptococcus	Total saline per clysis 250 cc.	
W. F.	1/29	2/ 2	2/12	2,080	2,010	O	Breast milk and cow's milk to 2/8 Pectin-agar formula to 2/11	0	7	1	102.4	Streptococcus	Total saline per clysis 275 cc.	
S. L.	2/ 2	2/ 7	2/18	2,185	2,100	G	Cow's milk to 2/11 Pectin-agar formula to 2/17	70	7	6	100.4	Streptococcus	Total saline per clysis 975 cc.	
P. T.	2/ 3	2/ 6	2/19	3,880	4,060	O	Breast milk and cow's milk to 2/11 Breast milk and pectin-agar formula to 2/14 Pectin-agar formula to 2/17	10	9	3	99.2	Streptococcus	Transfusion of 50 cc. blood	
N. M.	2/ 3	2/ 7	2/19	2,660	2,750	O	Breast milk and cow's milk to 2/13 Pectin-agar formula to 2/16	57	12	5	....	Streptococcus	Vomited part of feeding
D. W.	2/ 5	2/10	2/19	2,010	3,095	B	Breast milk and cow's milk to 2/17 Pectin-agar formula to 2/19	50	11	3	99.8	B. cloacae	Total saline per clysis 375 cc.	
M. H.	2/ 8	2/12	2/19	3,250	3,080	B	Pectin-agar formula to 2/17	0	6	1	99.6	B. coli	Some regurgitation	
G. U.	2/ 8	2/11	2/18	3,165	3,120	B	Breast milk and pectin-agar formula to 2/15 Pectin-agar formula to 2/17	60	5	7	100.0	Streptococcus	.....
R. E.	2/ 0	2/12	2/20	3,310	3,445	B	Breast milk and cow's milk to 2/14 Pectin-agar formula to 2/16	10	9	1	99.6	B. cloacae	Streptococcus	
B. P.	11/4	11/6	11/13	3,370	3,360	B	Breast milk to 11/8 Pectin-agar formula to 11/12	20	8	1	99.6	Streptococcus	Total saline per clysis 125 cc.	
								100	7	2	....	B. cloacae	Total saline per clysis 125 cc.
								100	16	2	99.0	.....	.....

* Date blood first appeared.
† A, blood seen, no diarrhea or systemic symptoms; B, blood and diarrhea with no systemic symptoms; C, blood, diarrhea and systemic symptoms.

on this diet because the feces were becoming more liquid and frequent or were failing to improve satisfactorily, and too rapid a change from pectin-agar formulas back to a standard feeding resulted in an exacerbation in symptoms. One patient (B. P.) included in this series became ill the second day after birth. The feces contained blood and mucus and were liquid. On the day pectin-agar was started there were sixteen stools. The next day there were four soft passages with no gross blood. The special formula was given for three days

was 55 as contrasted with a fall to 10 per cent as an average while the patients were on pectin-agar formulas. The mean number of days until all liquid stools became soft and normal appearing was 4.7 with standard feedings as contrasted with a fall to 1.6 days with pectin-agar.

The specific etiologic agent in these cases of enteritis was not proved, but *Bacillus cloacae* and streptococci capable of fermenting mannite were found in the stools of most of the sick infants in contrast to twelve normal

babies in whose stools no streptococci were found and in only one instance *B. cloacae*. When a pure culture of the latter was injected intravenously into rabbits a diarrhea resulted. This organism is not usually considered pathogenic for man.⁵

RESULTS IN DIARRHEA OF OLDER INFANTS AND CHILDREN

Approximately fifty infants and children with bacillary dysentery and other types of diarrhea have been treated in the home with gratifying results. Hospitalization is avoided because the stools promptly become formed, hydration is maintained, vomiting is minimal, calories are adequate to assure weight gain, the food is usually well taken because of the adaptability to various tastes, the infants are less fretful because of decreased tenesmus and absence of hunger, and finally chronic intestinal infection is less frequent. Starvation regimens and bad tasting diets fail to fulfil most of the criteria just mentioned. Formed stools usually appear the next day after the diet is begun if no other food is permitted. Transition to a regular diet may be begun the second or third day of treatment in cases of true enteritis due to dysentery or other pathogenic bacteria. In these infants the therapeutic diet should be continued until blood, pus and mucus disappear from the stools.

The following case report is typical of the results obtained with this treatment for the various types of diarrhea after the first half year of life:

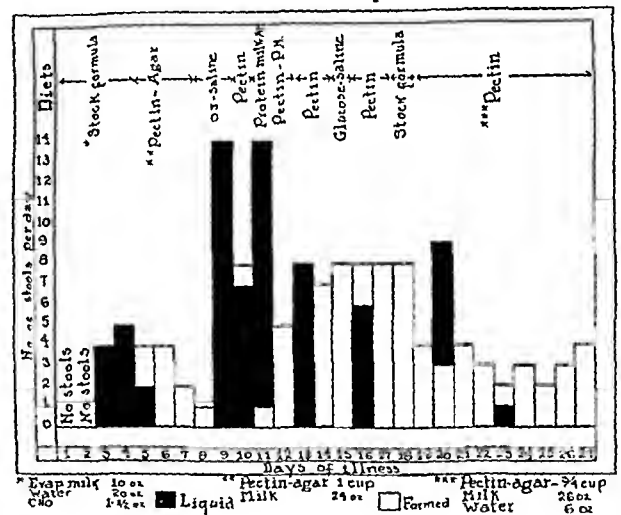
REPORT OF CASE

An infant aged 8 months was under observation and treatment for lymphatic leukemia. The accompanying graph shows the clinical course of a diarrhea that developed in conjunction with various associated parenteral infections. It is noteworthy that liquid stools promptly appeared when an orange juice, salt and sugar mixture, protein milk, dextrose-saline or standard formula was given, but the stools always became soft or formed in less than twenty-four hours with pectin-agar administration. The actual number of liquid passages undoubtedly exceeded those recorded, as bedside observation of the infant while it was on liquid diets revealed an almost constant passage of flatus and watery, mucous stools. A short time after pectin-agar administration the passages and flatus diminished, and bowel sounds decreased. The diarrhea was probably based on the parenteral infections and reflex irritation from leukemic infiltration of the mesenteric lymph nodes and Peyer's patches as shown at autopsy. The bowel mucosa was found to be intact.

RATIONALE

For various reasons an increasing number of clinicians deem it rational and, when possible, advisable to give high carbohydrate diets to infants suffering from acute gastrointestinal disturbances, particularly if associated with parenteral infections. First, these conditions tend to decrease food tolerance by diminishing gastric secretion and by altering gastrointestinal motility with increased and sometimes reversed peristalsis. So it seems desirable to give an easily digested, simple, high carbohydrate food rather than high protein foods, which because of their complex nature are more difficult to digest. Secondly, these infants have an increased metabolic rate due particularly to the hyperpyrexia. So there is increased catabolism in an individual with a digestive tract that may have a decreased ability to supply the demands. Since simple carbohydrates are easily digested and assimilated, the decreasing liver

glycogen is more readily replenished and the ketosis with its possible compensatory vomiting, resulting from protein and fat catabolism, is less likely to develop. Newborn babies, particularly if premature, often do better on a high carbohydrate formula as their caloric requirements are higher than subsequently and it is at this time that they are very susceptible to diarrhea and digestive upsets. This pectin-agar preparation fulfills the requirement of a high carbohydrate formula and in addition it is more digestible, possibly owing to the acidity of the pectin, its colloidal action and its ability to precipitate the milk into a very fine curd, a physico-chemical phenomena that does not alter the taste.⁶ Whatever the underlying mechanism for increasing food tolerance, the fact remains that very sick infants often easily tolerate concentrated pectin-agar formulas of various carbohydrate, fat and protein combinations, even up to over 100 calories per ounce. This preparation has been used as a basic formula to which powdered milk combinations, carbohydrates or other foods are added to increase calories in a tolerable, antiketotic



Clinical course of diarrhea in an infant aged 8 months.

genic, low volume feeding. Such a procedure has been helpful in treating marasmic babies with or without diarrhea, premature infants or infants with vomiting based on pylorospasm or ketosis resulting from acute infections. The ease with which these pectin-agar formulas are utilized adds an important factor to their rationale and usually obviates the necessity of starving sick infants that need normal or increased caloric intake.

In the original publications it has been shown that nickel pectinate preparations are bactericidal under proper conditions of heat and acidity.⁷ Arnold⁸ has repeated these experiments with confirmatory observations; however, it has been shown⁹ that pectin decreases bacterial growth only to the extent that the pH is lowered and that the presence of pectin does not increase the

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toxicity of nickel for *Escherichia coli*. The therapeutic effect of pectin-agar powders prepared with nickel pectinate and other pectins has been essentially the same, and the acidity of pectin is neutralized in the intestine; so it seems unlikely that the results of this treatment are dependent on a bactericidal effect.

Many feel, in cases of diarrhea in infants, that the bowel should be put relatively at rest by withholding oral food and in some instances even water. It does not necessarily follow that the empty gastrointestinal tract is at maximum rest. Some children on such a regimen have almost constant green passages containing mucus and flatus. Starvation favors the ascent of *Escherichia coli* into the upper bowel with secondary gas formation. This fact and the hunger contractions superimpose the well recognized mechanism of starvation diarrhea. In such instances, on listening to the abdomen with a stethoscope, one readily gets the impression that there is still much to be desired in the way of putting the bowel to rest. These pectin-agar diets of the types just described allay hyperperistalsis and actually put the bowel relatively at rest as compared with starvation regimens, as evidenced by the prompt decrease in bowel sounds, flatus and stools even before the gel has had time to pass through the gastrointestinal tract.

Pectin and cellulose have been shown by Malyoth,⁹ Baumann and Forscher-Boke¹⁰ and others to be the only components in apple that, if destroyed, result in a poor effect from apple therapy. Scheer¹¹ has reported good results from agar-milk preparations and stresses the importance of agar in mechanically giving formed stools and cleansing the gastrointestinal tract. Pectin on hydrolysis releases arabinose, galactose, methyl alcohol and up to over 90 per cent galacturonic acid. Glycuronic acid, an isomer of galacturonic acid, has long been recognized as a chemical detoxicant for certain catabolic products and ingested poisons. Manville and his co-workers¹² report experimental evidence suggesting that pectin has the power of forming conjugation products similar to glycuronic acid and that the administration of pectin has a glycuronic acid sparing effect. Uronic acids are important in the synthesis of mucin and, if the demands for detoxication are too great, mucus secreting elements are impaired with a tendency toward ulcer formation. Winters, Peters and Crook¹³ have shown that pectin heals and prevents experimental peptic ulcers in dogs. Manville, Bradway and McMinis¹⁴ suggest that pectin also has a protein sparing effect by decreasing the demands for glycuronic acid formed in part from glycogenic amino acids resulting from the breakdown of body proteins.

Many articles have been published on the values of pectin as a hemostatic agent.¹⁵ Recent experimental data throw some doubt on its effectiveness in actually

controlling bleeding.¹⁶ In the cases studied, blood did not promptly disappear from the stools, however, sooner than with other forms of treatment. The passage of blood decreased in proportion to the healing of the ulcerations, as evidenced by proctoscopic examination. It would seem, therefore, that there is more rapid healing of the bowel mucosa but no direct hemostatic effect.

The role of pectin *per se* in controlling the symptom diarrhea seems to be as yet not completely determined. Block and his co-workers¹⁷ report that nickel pectinate is effective in treating acute and chronic dysentery. Owing to the natural tendency for remissions and exacerbations of symptoms in these cases, regardless of therapy, it is difficult to draw conclusions from a small series. These authors state that pure pectin is ineffective. This opinion is not held by others, who report good results in treating various types of diarrhea with pure pectin;¹⁸ however, Wilke lays more stress on the systemic improvement and states that pectin does not produce as well formed stools as apple or banana. Experience with the University of Indiana group in treating both adults and infants with nickel pectinate revealed no definite help in controlling the liquid stools; in fact, in most instances evacuations became more liquid and frequent, so that it was necessary to discontinue the therapy. There was, however, possibly some evidence of systemic improvement. In our experience the use of nickel pectinate alone has been unsatisfactory in treating infants and children. Any systemic improvement has been offset by a lack of control of the diarrhea or an exacerbation of the symptom. Our results have been equally good whether nickel pectinate or other pectins have been used in the pectin-agar powder. Any treatment to be satisfactory during infancy must control the liquid stools promptly. So the sum total effect of the pectin-agar-dextrin-maltose formula may be summarized as follows: 1. Pectin retains any value it may have as a detoxicant, adsorbent and healing agent. 2. It is in a vehicle which promptly controls the symptom diarrhea. 3. The preparation results in a high calory, high carbohydrate, well tolerated food which tends to combat ketosis and vomiting.

SUMMARY

1. The method of preparing and administering pectin-agar formulas for nurslings and older children is simply cooking 8 ounces by volume of pectin-agar powder into 24 or 16 ounces of milk.
2. In a series of twenty-three cases of enteritis in the newborn, complete recovery occurred in all. Nine infants in the group were treated with pectin-agar formulas which proved helpful and practical.
3. Excellent results were obtained in treating older infants and children. The simplicity and effectiveness of the pectin-agar regimen lends itself particularly well to treating infants and children at home.
4. The rationale of this therapy depends on the combined effects of the pectin-agar combination in well tolerated, antiketogenic, highly nutritious formulas.

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POTASSIUM SALTS IN THE TREATMENT OF POLLINOSIS

A CLINICAL EVALUATION

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The evaluation of therapeutic results in hay fever has always been a difficult task, primarily because of the absence of objective methods of study. Since it is necessary to evaluate such therapy by subjective means, the patients must be studied under close scrutiny and with a view to the natural variations in conditions which modify the course of the disease. It has been shown repeatedly that the severity of hay fever symptoms in the individual depends chiefly on the concentration of pollen in the air. These concentrations vary geographically, seasonally and daily. Failure to employ these considerations in arriving at opinions of various types of hay fever treatment has been responsible for a large number of the enthusiastic, but usually short lived, new therapeutic methods.

In 1933 one of us¹ presented a method of evaluation of therapeutic results in hay fever. This consists essentially of daily grading of the symptoms of a number of patients under experimentation and their comparison with a control group of hay fever patients as well as comparison with the pollen counts.

In the present undertaking our aim was to evaluate the currently proposed potassium chloride treatment of hay fever. Bloom² had reported that he obtained strikingly beneficial results with the use of potassium salts in twenty-nine cases of hay fever. Potassium chloride given in 5 to 10 grain (0.32 to 0.65 Gm.) doses three times daily gave good results, in many patients the symptoms disappearing within a few minutes. The results in chronic asthma were poor, many patients having their symptoms increased. In a second paper, Bloom and Grauman³ extended their series of hay fever cases to sixty-one, in practically all of which there was response to this therapy. A number of other allergic cases were added and in most of these, with the exception of asthma, good results were claimed. Even cases of "chronic sinusitis" showed a high incidence of improvement. In neither of these papers is there any evidence indicating that the authors observed these patients with reference to variations in pollen counts and comparison with control hay fever groups. There is not even any clear statement describing the types of pollinosis on which these experiments were made.

To a series of twenty-seven allergic patients, mostly children, of whom thirteen had seasonal hay fever or asthma, Abt⁴ administered potassium chloride in doses of 2½ to 5 grains (0.16 to 0.32 Gm.) three times daily. Good results were obtained. Fortunately the author

included the dates on which the treatment was begun in the individual patient. It is interesting to note that in the seasonal cases of asthma and hay fever the earliest date on which this medication was administered was October 20. Since it is well known that pollinosis in Chicago terminates before the end of September it is readily apparent that the conclusions are based on false premises. Had Abt failed to give any dates, which is the case with most authors, this report might have been considered substantial evidence in favor of potassium chloride.

It may be mentioned that prior to these reports on hay fever therapy Rusk and Kenamore⁵ had described a small group of patients with urticaria who received partial to complete relief for varying periods of time while on a high protein, low sodium, acid ash diet, with added potassium chloride. Later, Rusk and his co-workers⁶ found that, while certain allergic patients with symptoms of urticaria and asthma showed definite relief with the use of potassium chloride alone or combined with insulin, others did not seem to benefit by this treatment. From their investigations they were unable to determine which allergic patients will show a therapeutic response.

Harley⁷ described a series of forty-three patients suffering from hay fever, allergic rhinitis, asthma, urticaria and eczema in whom potassium chloride therapy failed to produce any significant degree of improvement.

CLINICAL OBSERVATIONS

Prior to the ragweed hay fever season we had studied a group of nonseasonal cases of allergy such as asthma, perennial rhinitis and urticaria. When the first symptoms of ragweed pollinosis were noted in 1939 a group of patients was placed on potassium therapy. Later, when the season was well established, an additional group was treated similarly. Two types of observations were made: the immediate effects on the symptoms and the more prolonged influence of this medication.

In a group of thirteen patients the immediate effects of potassium salts were observed. Five patients with hay fever were given 15 grains (1 Gm.) of potassium chloride with no improvement in four noted by the patient or observer in the period of one hour. One patient stated that she had a little clearing of her nose. Three patients with moderately severe hay fever were given 30 grains (2 Gm.) of potassium gluconate. In two no improvement was noted, while in the third instantaneous temporary clearing of the nose resulted. This relief was later reproduced in the same patient by a drink of cold water. Of three patients with hay fever and asthma, two obtained no relief after a dose of 15 grains of potassium chloride while the third had an exacerbation of the asthma. In two other patients with hay fever and asthma the use of 30 grains of potassium gluconate gave no relief in the period of one hour.

In a study of the effect of prolonged administration of potassium salts, 153 patients with hay fever or hay fever with asthma received potassium chloride or potassium gluconate for periods varying from several days to a few weeks. The usual dose for adults was from 10 to 15 grains of potassium chloride or from 15 to 30 grains of potassium gluconate three or four times daily. The dose for children was from 5 to 10 grains of potas-

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sium chloride three to four times daily. Potassium chloride was dispensed in a vehicle of distilled water, syrup of glycyrrhiza, or syrup of sweet cherry. Potassium gluconate was dispensed in 5 grain tablets. The patients were directed to take their medicine with an abundance of water. In order not to rely on the patient's memory, they were instructed to keep an accurate written daily report of all their symptoms. It was noted that of the 153 patients only seven patients experienced mild relief while 146 patients obtained no relief. Two of the 153 patients became worse. One patient with idiopathic epilepsy who was free from symptoms for almost a year had a recurrence of his seizures. Three patients experienced epigastric pain and gastrointestinal upsets following the ingestion of potassium chloride. These symptoms were not present when they were taking potassium gluconate.

In order to make accurate comparisons with groups of similar patients not receiving potassium salts our group of 153 patients was divided as follows:

1. Patients with hay fever symptoms who had inadequate or no specific desensitization therapy. This group comprised thirty patients, twenty-eight receiving potassium chloride and two potassium gluconate. No improvement could be observed in twenty-seven of these patients, while two had mild relief and one was made worse.

2. Patients with hay fever and asthma who had inadequate or no specific desensitization therapy. Of fifty-two such patients fifty received potassium chloride and two potassium gluconate. Only two patients taking potassium chloride obtained mild relief. The remainder had no improvement.

3. Patients with hay fever who had adequate specific desensitization therapy but had remaining symptoms. There were twenty-four patients in this group. None received any benefit. One had gastrointestinal symptoms from the potassium chloride, which was eliminated by the substitution of the gluconate salt.

4. Patients with hay fever and asthma who had adequate specific desensitization but had remaining symptoms. Of forty-four patients in this group forty had no benefit. Mild improvement was noted in three patients and marked aggravation of the symptoms occurred in one patient. Three patients had gastrointestinal upsets from the potassium chloride.

In the groups of patients who had remaining symptoms, observations were made to see whether these symptoms would be improved.

Daily pollen counts were made and a curve representing the daily concentration of pollen for the entire ragweed season was charted. It was noted that the severity of the symptoms followed rather closely the changes of pollen density. It was also noted that after the administration of potassium salt the symptom curve continued its normal course. Worthy of emphasis was the dipping down of the symptom curves with the dipping down of the pollen curve. Had not the pollen counts been sufficiently considered, any therapy at this point would have been deemed a success.

Potassium chloride was also used in nonseasonal cases of allergy for periods lasting from five days to three months. Fifteen asthma patients received potassium chloride. Six were worse while on this therapy and four showed no improvement. Nine patients with perennial allergic rhinitis showed no improvement on potassium chloride. One patient had polyps that did not decrease with this therapy, so they were removed surgically. In six cases of angioneurotic edema or

urticaria two showed temporary improvement. In three cases of dermatographism the therapeutic effect of potassium chloride was questionable.

Thus, after evaluating the results of potassium chloride in the individual patient and comparing groups of patients with similar groups which did not receive potassium chloride, we are forced to the conclusion that potassium salts have no practical usefulness in the treatment of hay fever. Moreover, it was definitely noticed that some of the asthma patients were worse while on potassium. Whether patients with urticaria, angioneurotic edema and dermatographism definitely improve on this medication remains to be seen from further observation on a greater number of patients. Our group of patients was too small.

SUMMARY

1. Potassium salts were of no practical therapeutic value in our series of 153 patients with hay fever and seasonal asthma.

2. The effect of such salts in other allergic conditions is highly questionable.

3. Reports of therapeutic results in hay fever should be received with skepticism unless they bear the earmarks of evaluation by methods based on relationship of the symptoms to daily, seasonal and geographic fluctuation of the pollen counts.

HAVERHILLIA MULTIFORMIS SEPTICEMIA

ITS ETIOLOGIC AND CLINICAL RELATIONSHIP TO
HAVERHILL AND RAT-BITE FEVERS

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AND

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PHILADELPHIA

It has long been known that the bite of a rat may be followed by a recurring fever. In the orient such a syndrome has been recognized for centuries and has been called sodoku. The recovery of more than one type of organism from patients having a fever after a rat bite has led to considerable confusion. When an infecting agent has been recovered from patients so stricken, it has usually been one of two organisms: In the majority of instances *Spirillum minus* (*Spirochaeta morsus muris*) has been thought to be causative. From a few patients, however, an entirely different organism, *Haverhillia multiformis* (*Streptobacillus moniliformis*, *Streptothrix muris ratti*), has been recovered.

Although it might be expected that the clinical picture would vary according to the infecting agent responsible, such a clinical differentiation has not yet been clearly established. Instead, as each new case has been reported, the author has usually proposed that the organism which he recovered must be the cause of "rat-bite fever." The history of this controversy can be read in the editorial pages of *THE JOURNAL*,¹ where comments have appeared periodically since 1915, the latest being in the issue of Sept. 2, 1939. We believe that

From the William Pepper Laboratory and the Edward B. Rohlinette Foundation, medical clinic of the University of Pennsylvania Hospital. This article is abbreviated in *THE JOURNAL* by omission of an extensive bibliography for table 1. The complete article appears in the authors' reprints.
1. Haverhill Fever (*Erythema Arthriticum Epidemicum*), editorial, J. A. M. A. 113: 941 (Sept. 2) 1939.

evidence is accumulating to allow of a clinical as well as an etiologic differentiation between two diseases which have heretofore been confused and grouped together under the name "rat-bite fever."

As its name suggests, *Haverhillia multiformis* is also the organism recovered from patients with Haverhill fever (*Erythema arthriticum epidemicum*). There was no history of rat bite preceding the illnesses of those who suffered in the epidemic of 1926 in Haverhill, Mass. One is thus confronted with three diseases: sodoku, *Haverhillia multiformis* septicemia following rat bite, and Haverhill fever. The same infecting agent is concerned in the last two, but the mode of infection differs.

It is our purpose in this paper (a) to point out the similarities between Haverhill fever and fever following rat bite due to *Haverhillia multiformis* septicemia, (b) to show that the *Haverhillia multiformis* infections present clinical features distinguishing them from rat-bite fever (sodoku) due to *Spirillum minus*, and (c) to indicate methods for the laboratory diagnosis of the diseases under consideration.

REPORT OF CASE

R. B. E., a man aged 21, was bitten on the left thumb by an albino rat Aug. 2, 1938, while working in a medical laboratory. Three days later he awoke with malaise and in the early afternoon suffered a severe chill lasting for thirty minutes. He was admitted that day to ward D in the University of Pennsylvania Hospital, in the service of Dr. O. H. Perry Pepper.

The clinical course is shown in the accompanying chart. On admission there was insufficient evidence of local or systemic disease to account for a fever of 105 F. The wound of the bite on his left thumb had healed and subsequently showed no evidence of inflammation. He was somewhat disoriented; the mucous membranes of the throat and eyelids were slightly congested; there was moderate generalized enlargement of the lymph nodes, but the spleen was not palpable. The physical examination was otherwise negative. The family background and the past medical history did not prove of importance to the present illness.

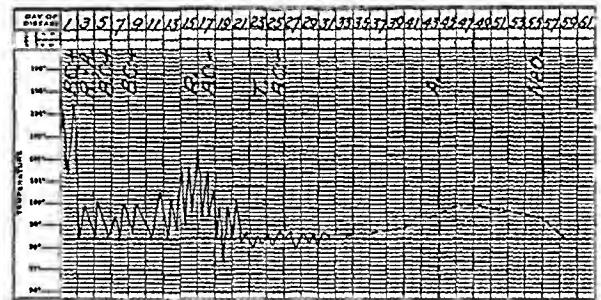
The initial laboratory examinations revealed hemoglobin 80 per cent, white blood cells 32,000, neutrophils 80 per cent, lymphocytes 16 per cent and eosinophils 4 per cent. Urinalysis showed no abnormalities. Cultures taken of material from the throat, of the sputum and of the stool revealed no predominating pathogen. The blood serum did not agglutinate *Bacillus typhosus*, *Brucella abortus*, *Bacterium tularensis* or *Bacillus proteus* N_2 and N_6 . The Wassermann reaction of the blood gave negative results during (and after) the illness.

Two features of the clinical course were noteworthy: cutaneous lesions and arthritis. On the second day of the illness a maculopapular rash appeared over the lower part of the chest and the upper part of the abdomen. The lesions were discrete, being from 3 to 5 mm. in diameter, and faded on pressure. With the subsidence of the fever the rash disappeared, only to become evident again during the second paroxysm. At this time the lesions tended to be confluent. They involved the distal halves of the extremities, including the palms and the soles. This rash persisted for four days. Dr. Robert Shaffer made a diagnosis of toxic erythema. On the tenth day several tender nodules were noted on the finger tips. A day later these were purpuric, and in the succeeding two days a yellow umbilicated center developed. No pathogenic organisms were found on culture and dark field examination of one of the nodules taken for biopsy. Dr. Herman Beerman reported that microscopic sections from one of these cutaneous lesions showed an inflammatory reaction of nonspecific character. During the second paroxysm of fever many small petechial and purpuric spots appeared over the lateral aspects of the feet. On the fourth day of the illness there was marked tenderness over the symphysis pubis and stiffness of the right knee and left elbow. These symptoms subsided after forty-eight hours. On the fifth day the patient complained of severe pain in the left shoulder. This did not subside until the last week of hospitalization,

despite the application of an airplane splint to immobilize it in abduction. On the forty-third day the left hip became stiff and painful. The involved joints were not aspirated, since there was no evidence of effusion. Repeated roentgenograms of the affected joints were negative. During the paroxysms of fever the lymph nodes of the left axilla became swollen and painful.

From the twelfth to the sixty-eighth day of his illness the patient was given potassium iodide from 30 to 90 grains (2 to 6 Gm.) daily—the smaller dose being used after the appearance of a pustular iodide eruption. After the second bout of fever, the hemoglobin having fallen to 68 per cent, a transfusion of 500 cc. of citrated blood was given. Progressive improvement ensued. The temperature fell to normal and the patient gained weight and was discharged from the hospital September 8. On the fifty-sixth day after the onset semiweekly injections of from 0.1 to 0.5 Gm. neoarsphenamine were started and continued in ascending doses to a total of 2.5 Gm. Two days after the first injection of neoarsphenamine the stiffness in his left hip subsided and the temperature, which again had been ranging between 99 and 100 F., fell to normal and remained there. At present, more than a year later, the only sequelae are an occasional twinge of pain in the left hip and persistent enlargement of lymph nodes in the left axilla.²

On the third day of the illness dark field examinations of the blood, lymph node fluid and scrapings from the cutaneous lesions were negative for spirilla. On the fifth day, blood from the patient was inoculated into white mice and guinea pigs.



Temperature (F.) in a case of *Haverhillia multiformis* septicemia: B. C., blood culture; R., rash; A., arthritis; T., transfusion; Neo, neoarsphenamine.

Subsequent dark field examinations of the blood of these animals were made at two day intervals for a month but no spirillar forms were seen. The animals remained well.

Blood cultures taken on the first, fourth and seventh days of the disease showed growth of *Haverhillia multiformis* in plain broth and brain broth mediums after two days of incubation at 38 C. The bacteriologic characteristics of this organism were identical with those described by Parker and Hudson.³ Intraperitoneal inoculation of a white mouse with 1 cc. of a broth culture of the organism caused polyarthritis and other characteristic lesions.⁴ The animal died on the fourteenth day after inoculation. The organism was recovered from cultures of its heart's blood. We found it impossible to divide the organisms by prolonged shaking, resuspension or supersonic fragmentation methods into a homogeneous antigen suspension suitable for testing agglutination. Twelve rats from the colony which our patient had been tending were examined by the methods described by Strangeways.⁵ *Haverhillia multiformis* could not be isolated. Dark field examinations of the blood and nasopharyngeal secretions of the same animals were negative for *Spirillum minus*.

This syndrome of intermittent fever, morbilliform and petechial cutaneous eruptions and arthritis has been observed following rat bite and has been likened

2. An insurable result from an insurance company. The Etiology of Haverhill Fever. Am. J. Path. 2: 357 (Sept.) 1926.
3. Van Rooyen, C. E.: The Biology, Pathogenesis and Classification of Streptobacillus Moniliformis. J. Path. & Bact. 43: 455 (Nov.) 1936.
5. Strangeways, W. I.: Rats as Carriers of Streptobacillus Moniliformis. J. Path. & Bact. 37: 45 (July) 1933.

to the clinical picture of Haverhill fever by Scharles and Seastone⁶ and by Farrell, Lordi and Vogel.⁷ The etiologic agent causing the two diseases is *Haverhillia* multiformis. In the case of Haverhill fever the portal of entry has not been proved, but Place and Sutton⁸ suggest that the original epidemic was probably milk borne.

A third disease, called sodoku by the Japanese, has been shown by Futaki⁹ and others to be due to infection with *Spirillum minus*. It is characterized by an indolent primary lesion and lymphangitis occurring at the onset of fever, followed by a papular or large macular eruption, from which the organism can occasionally be recovered. An intermittent fever may persist for many months. Arsenic is specifically curative. This disease has been observed most frequently in the orient,¹⁰ but sporadic cases have occurred on this continent¹¹ and in South America.¹² The experimental inoculation of man and certain animals¹³ with this organism has resulted in an infection resembling syphilis.

Certain similarities between the two types of fever following rat bite have led, until recent times, to their being considered variants of the same disease. The

fever and cases which we adjudged to be Haverhill fever on account of their clinical and bacteriologic features were reviewed. Only those reports including some clinical data, supported by bacteriologic confirmation, were thought to be suitable for tabulation. This survey revealed 111 cases of sodoku (*Spirillum minus* isolated), sixteen cases of *Haverhillia* multiformis septiemia following rat bite, five cases of fever following rat bite from which both *Spirillum minus* and an organism resembling *Haverhillia* multiformis were said to have been recovered, and sixteen cases of Haverhill fever not associated with rat bite. It was hoped that a tabulation of the clinical features of each would show significant differences between the *Haverhillia* and the spirillar diseases. That this was not the case may be explained by the fact that the completeness of our review is manifestly limited by the extensiveness of the diagnostic study in any particular instance. The earlier reports, particularly, were apt to include only fragmentary accounts of the clinical and laboratory aspects.

In spite of these difficulties, certain features stand out as tending to differentiate the spirillar form (sodoku) of rat-bite fever from the type produced by *Haverhillia* multiformis. These features are shown in

TABLE 1.—Occurrence of Clinical Features According to Syndrome and Etiology

	Spirillum minus— Rat-Bite Sodoku 111 Cases			Haverhillia Multiformis— Rat-Bite Septicemia 16 Cases			Haverhillia Multiformis— Haverhill Fever 16 Cases			Both Organisms Rat Bite 5 Cases		
	Present	Absent	Not Specified	Present	Absent	Not Specified	Present	Absent	Not Specified	Present	Absent	Not Specified
Arthritis.....	4	3	104	0	0	7	16	0	0	3	1	1
Exacerbation of bite wound.....	96	5	10	7	3	6	..	..	..	4	0	1
Suppuration of bite wound.....	11	17	83	0	5	11	..	..	..	0	2	3
Anemia; hemoglobin less than 80%.....	17	8	86	4	2	10	14	0	2	0	0	5
Cure with arsenic.....	84	1	26	4	0	12	1	0	15	3	1	1
Incubation period more than 10 days.....	63	37	11	7	9	0	0	1?	15	3	0	2
Leukocyte count of more than 12,000.....	24	27	60	11	1	4	1	14*	1	1	1	3
Rash.....	80	3	28	14	1	1	16	0	0	4	0	1
Large macular.....	38	..	..	3	..	..	0	..	..	1	..	..
Small macular.....	15	..	..	7	..	..	16	..	..	1	..	..
Papular.....	15	..	..	0	..	..	1	..	..	1	..	..
Recurring with fever.....	30	..	..	5	..	..	14	..	2	3	..	..

* The average leukocyte count in thirteen cases reported by Place and Sutton was 11,500.

history of rat bite, the fever and the occurrence of cutaneous lesions at first glance make the two seem related. Furthermore, it has been shown that laboratory and wild rats can act as carriers of both *Haverhillia* multiformis⁵ and *Spirillum minus*.¹⁴ Although certain observers, such as Futaki,¹⁵ who are well acquainted with sodoku have pointed out clinical differences between the two diseases, their impressions have not been supported by adequate evidence.

We have therefore reviewed the accessible literature for instances of fever following rat bite, from which either *Spirillum minus* or *Haverhillia* multiformis (or both) was recovered. Particular attention was paid to the clinical course. In addition, all reports of Haverhill

fever and cases which we adjudged to be Haverhill fever on account of their clinical and bacteriologic features were reviewed. Only those reports including some clinical data, supported by bacteriologic confirmation, were thought to be suitable for tabulation. This survey revealed 111 cases of sodoku (*Spirillum minus* isolated), sixteen cases of *Haverhillia* multiformis septiemia following rat bite, five cases of fever following rat bite from which both *Spirillum minus* and an organism resembling *Haverhillia* multiformis were said to have been recovered, and sixteen cases of Haverhill fever not associated with rat bite. It was hoped that a tabulation of the clinical features of each would show significant differences between the *Haverhillia* and the spirillar diseases. That this was not the case may be explained by the fact that the completeness of our review is manifestly limited by the extensiveness of the diagnostic study in any particular instance. The earlier reports, particularly, were apt to include only fragmentary accounts of the clinical and laboratory aspects.

The *Haverhillia* multiformis infections thus appear to occur as septicemias with metastatic arthritis and morbilliform and petechial cutaneous eruptions. The picture is similar whether infection has occurred by rat bite or otherwise (e. g. through the mouth as is probably the case in Haverhill fever). The bite wound is likely to heal readily. The systemic involvement is paramount.

By contrast, when *Spirillum minus* is concerned (sodoku) the bite wound may become a chronic indurated chancre with lymphangitis; the cutaneous lesions

6. Scharles, F. H., and Seastone, C. V., Jr.: Haverhill Fever Following Rat Bite, *New England J. Med.* 211:711 (Oct. 18) 1934.

7. Farrell, Elliston; Lordi, G. H., and Vogel, Joseph: Haverhill Fever: Report of a Case with Review of the Literature, *Arch. Int. Med.* 64: 1 (July) 1939.

8. Place, E. H., and Sutton, L. E.: Erythema Arthriticum Epidemicum (Haverhill Fever), *Arch. Int. Med.* 54: 659 (Nov.) 1934.

9. Futaki, Kenzo; Takaki, Ftsuna; Taniguchi, Tenji, and Osumi, Shimpaichi: The Cause of Rat Bite Fever, *J. Exper. Med.* 22: 249 (Feb.) 1916.

10. Chopra, R. N.; Basu, B. C., and Sen, S.: Rat-Bite Fever in Calcutta, *Indian M. Gaz.* 74: 449 (Aug.) 1939.

11. Bayne-Jones, Stanhope: Rat-Bite Fever in the United States, *Internat. Clin.* 2: 235 (Sept.) 1931.

12. de Araujo, Eduardo: Diagnostico Experimental de Sodoku, *Brasil-med.* 45: 924 (Oct. 3) 1931.

13. Stühmer, A.: Die Rattenbisszerkrankung (sodoku) als Modellinfektion für Syphilisstudien, *Arch. f. Dermat. u. Syph.* 155: 98, 1929.

14. Knowles, R., Das Gupta, B. M., and Sen, S.: Natural *Spirillum minus* Infection in White Mice, *Indian M. Gaz.* 72: 210 (April) 1936.

15. Futaki, K.; Takaki, I.; Taniguchi, T.; Osumi, S.; Ishiura, K., and Ohtawara, T.: Demonstration of the Spirochaeta Causing Rat-Bite Fever, *Tr. Sixth Cong. Far East A. Trop. Med.* 2: 133, 1925.

are large, frequently elevated and never petechial, and metastatic arthritis does not occur.

In order that these clinical differences can become more clearly delineated, reports in the future should include the result of a search for both organisms. The procedures involved are outlined in table 2. Further details can be obtained on reference to the papers of Bloch and Baldock,¹⁶ and of McDermott.¹⁷ The possibility of the spontaneous occurrence of spirilla in the blood of laboratory animals should not be forgotten.¹⁸

Through appropriate laboratory investigations other problems can be approached: Does simultaneous infection with *Spirillum minus* and *Haverhillia multiformis* often occur in man following rat bite? Is neoarsphenamine of definite value in the treatment of diseases due to the bacterial organism? Both bacillary and pleuropneumonia-like forms have been described in cultures of *Haverhillia multiformis*¹⁹ but their exact relationship is not yet understood. In the light of Swift's²⁰ report of having recovered pleuropneumonia-like organ-

arthritis and morbilliform and petechial cutaneous eruptions.

2. *Spirillum minus*, entering the body through a rat bite, may produce changes comparable to those seen in syphilis—i. e. chancre, papular or large macular cutaneous eruptions and fever. Arthritis is very rare.

3. When a combination of the features mentioned are observed following the bite of a rat, a mixed infection may be suspected.

ROLE OF ALKALI THERAPY FOR PEPTIC ULCER IN FORMATION OF URINARY CALCULI

C. WESLEY EISELE, M.D.

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When peptic ulcer is treated by the customary methods, which involve the ingestion of large amounts of alkaline powders, several conditions are produced which are generally accepted as important etiologic factors in the formation of urinary calculi. It has been shown¹ that during a Sippy type of treatment the urinary excretion of solids is doubled, the specific gravity of the urine is high (the average twenty-four hour specimen having a specific gravity of 1.020) and the p_{H} of the urine is shifted to the alkaline side. These three conditions have been mentioned many times as important etiologic factors in the development of kidney stones. Because peptic ulcer is a common disease and because the use of large amounts of alkali is a popular form of treatment, it would be expected that in any large series of patients with urinary lithiasis there would be a significant number who had received treatment for peptic ulcer prior to the onset of lithiasis.

A survey of recent literature concerning the etiology of urinary lithiasis indicates that peptic ulcer therapy has received scant or negligible attention in this role. Most authors fail to mention it at all.² Goldstein and Abeshouse³ made an extensive review of the literature up to 1937, but they do not refer to peptic ulcer or its treatment. Cabot⁴ states that "some patients, whose diet is planned in such a way as to require a high alkaline intake such as is indulged in by patients with gastric and duodenal ulcers, do tend to develop stone." On the other hand, Priestley and Osterberg⁵ state that "it is extremely uncommon for patients who follow a prolonged medical regimen for the treatment of peptic ulcer which entails the consumption of large quantities of alkaline substance to have a urinary calculus." In

TABLE 2.—Laboratory Diagnosis of *Haverhillia Multiformis* and *Spirillum Minus* Infections

Procedure	<i>Spirillum Minus</i>	<i>Haverhillia Multiformis</i>
Blood culture	No growth on ordinary mediums	Draw blood at height of fever; add to beef bouillon; characteristic growth in 24 to 96 hours; ascitic fluid or serum enrichment of mediums needed for all subcultures
Animal inoculation	Inoculate mice and guinea pigs intraperitoneally with 2 cc. of filtrate blood or material aspirated from bite wound or adjacent enlarged lymph node; daily dark field examination of inoculated animal's blood for <i>Spirillum minus</i> ; if <i>Spirillum minus</i> is found before 5th day, it is probably a natural infection	Inoculations with patient's tissue fluids give negative results; inoculations of cultures into mice result in polyarthritis and death; not pathogenic for rats and guinea pigs
Tissue fluids	Dark field examination of patient's blood; serum from wound or involved lymph node (rarely positive); stained preparations of tissue fluids by Wright's, Giemsa's or Fontana's stain (rarely positive)	Centrifuge joint fluids and examine smears; take culture of joint fluid in ascetic or serum bouillon
Serologic reaction	Technically difficult and of questionable value	Positive agglutination, precipitin and complement fixation may offer confirmatory evidence

isms from exudates of patients having rheumatic fever, it is possible that *Haverhillia multiformis* may prove to play a part in diseases of man other than Haverhill fever and septicemia following rat bite.

SUMMARY AND CONCLUSIONS

From our observations on a patient suffering from *Haverhillia multiformis* septicemia after rat bite, together with a review of the literature pertaining to infection with this organism and with *Spirillum minus*, the following impressions are presented:

1. *Haverhillia multiformis* infections, acquired by rat bite or otherwise, usually produce septicemia with

16. Bloch, Oscar, and Baldock, Harry: A Case of Rat-Bite Fever with Demonstration of *Spirillum Minus*, *J. Pediat.* 10: 358 (March) 1937.
17. McDermott, E. N.: Rat-Bite Fever: Study of Experimental Disease with Critical Review of Literature, *Quart. J. Med.* 21: 433 (April) 1928.

18. Francis, Edward: Rat-Bite Fever Spirochetes in Naturally Infected White Mice, *Mus Musculus*, *Pub. Health Rep.* 51: 976 (July 17) 1936.
19. Kienelberger, Emmy: The Natural Occurrence of Pleuropneumonia-like Organisms in Apparent Symbiotic Relationship with *Haverhillia multiformis*, *J. Path. & Bact.* 41: 1 (Jan.) 1939.
20. Swift, H. F., and Brown, T. M.: Pathogenic Pleuropneumonia-like Micro-Organisms from Acute Rheumatic Exudates and Tissues, *Science* 59: 271 (March 24) 1939.

From the Department of Medicine, University of Chicago.

1. Eisele, C. W.: Changes in the Acid-Base Balance During Alkali Treatment for Peptic Ulcer, *Arch. Int. Med.* 63: 1048 (June) 1939.

2. Eisenstaedt, J. S.: Certain Tangible Factors in the Etiology of Urinary Calculus, *Surg., Gynec. & Obst.* 53: 730 (Dec.) 1931. Herbst, R. H.: Recurrent Renal Calculus: Its Cause and Prevention, *Am. J. Surg.* 12: 58 (April) 1931. Higgins, C. C.: Prevention of Recurrent Renal Calculus, *J. Urol.* 35: 494 (May) 1936; Factors which Influence the Formation of Urinary Calculi, *New York State J. Med.* 36: 1620 (Nov. 1) 1936. Joly, J. S.: The Etiology of Stone, *J. Urol.* 32: 541 (Dec.) 1934. Keyser, L. D., and Braasch, W. F.: The Etiology of Urinary Lithiasis, *Internat. Abstr. Surg.* 34: 1, 1922; in *Surg., Gynec. & Obst.*, January 1922. Keyser, L. D.: The Relationship of Urinary Infection to Recurrent Calculi, *J. Urol.* 31: 219 (Feb.) 1934; footnote 15. Livermore, G. R.: Nephrolithiasis, *Am. J. Surg.* 28: 253 (May) 1935; Etiology and Treatment of Renal Lithiasis, *J. Urol.* 41: 310 (March) 1939. Ravich, Abraham: Critical Study of Ureteral Calculi, *ibid.* 22: 171 (Feb.) 1933. Selenick, G. F.: Renal Lithiasis, *ibid.* 37: 79 (Jan.) 1937. Counselor, V. S., and Priestley, J. T.: The Present Conception of Renal Lithiasis, *J. A. M. A.* 104: 1309 (April 13) 1935. Wesson, M. B.: Renal Calculi: Etiology and Prophylaxis, *J. Urol.* 34: 289 (Oct.) 1935.
3. Goldstein, A. E., and Abeshouse, B. S.: Etiology of Urinary Lithiasis, *Internat. M. Digest* 30: 117 (Feb.) 1937.
4. Cabot, Hugh: Recent Advancements in Our Knowledge of the Pathogenesis of Renal Calculus, *Mississippi Doctor* 16: 1 (Aug.) 1938.
5. Priestley, J. T., and Osterberg, A. E.: The Relationship Between the Chemical Composition of Renal Calculi and Associated Bacteria, *J. Urol.* 36: 447 (Oct.) 1936.

a number of textbooks and monographs on urology⁶ no reference to peptic ulcer treatment was found.

Similarly, the literature dealing with the treatment of peptic ulcer is almost uniformly silent concerning urinary calculi as a possible complication of alkali therapy.⁷ Brown and Dolkart,⁸ in a critical review of the various methods of peptic ulcer treatment, do state that "it has been alleged that the incidence of renal calculi in patients who have been receiving alkaline powders over extended periods is far too high to be considered insignificant." No reference for this statement is given.

It is of interest that one of the conditions present during ulcer treatment, namely the ingestion and excretion of large amounts of crystalloids, has long been recognized as a standard method for producing kidney stones in laboratory animals. Keyser,⁹ Snapper and Polak¹⁰ and others have done extensive work in this field, producing stones in animals by the feeding of calcium carbonate, calcium oxalate and oxamide. Many authors believe that there is an analogous clinical syndrome in man. Keyser has named this "hyperexcretory calculosis." One would expect that the alkali treatment for peptic ulcer would be one of the chief examples of this syndrome, but I have not seen it so mentioned. The examples cited usually include the excessive excretion of oxalates, phosphates, uric acid, cystine, xanthine, leucine, and the hyperexcretion of calcium phosphate in hyperparathyroidism. A number of these conditions are admittedly rare. Livermore¹¹ states that he has never seen a case of xanthine stone. Hyperparathyroidism as a cause of nephrolithiasis has received much attention of late, yet in most institutions this disease is considered a rarity. The omission of peptic ulcer therapy from the list of examples of hyperexcretory calculosis, a list which includes such rare examples, would lead one to conclude that peptic ulcer treatment has seldom been observed in this role.

Although one would expect from theoretical considerations a high incidence of treated peptic ulcers in a series of urinary lithiasis cases, a survey of the literature suggests that this is not so. Because of this discrepancy, the present study was undertaken.

MATERIAL AND METHODS

The clinical records of all patients of the University of Chicago Clinics bearing the diagnosis of kidney or ureteral lithiasis were obtained from the diagnostic files. The study included all cases seen during the period extending from the founding of the Clinics, Oct. 1, 1927, to July 1, 1939. Both outpatient and hospital admissions were included. The clinical records of these patients were examined to determine if any previous diagnosis of peptic ulcer had been made. The duration of ulcer symptoms and the type and duration of ulcer treatment were noted, as well as the duration of urinary symptoms and the occurrence of any other systemic pathologic condition. Only ureteral and kidney stones were included in this study, for it has been shown by Winsbury-White,¹² Shivers and Henderson¹³ and others that bladder stones are found almost exclusively behind mechanical obstruction and usually in the presence of infection, thus placing them outside the considerations of this study.

RESULTS

The Incidence of Calculi in the Upper Urinary Tract.—During the twelve year period of this study, 223,110 new patients were admitted to the University of Chicago Clinics. The diagnosis of ureteral or kidney stone was established for 505 of these patients. Thus the incidence was one in 442 new patient admissions.

Of the lithiasis series 343 patients were males (67.9 per cent) and 162 were females (32.1 per cent), giving a sex ratio of 2.1 to 1. The age range was from 16 months to 76 years with an average age of 42.3 years. No important difference in age distribution between the two sexes was noted. The duration of symptoms at the time of the first observation ranged from a few hours to thirty-four years, averaging 3.8 years. (When there were recurrent attacks, the duration was calculated from the onset of the first attack.)

The Incidence of Peptic Ulcer in Patients with Urinary Calculi.—Forty-four patients in the urinary lithiasis series also had peptic ulcers. The ulcer history had antedated the onset of urinary stone symptoms in every case except one. This one case was excluded from the series used in the present study. The forty-three patients with preexisting peptic ulcer represented 8.5 per cent of the total lithiasis series. There were thirty-seven males and six females, giving a sex ratio of 6.2 to 1. The average age was 45.1 years and the age distribution curve by decades closely followed that of the entire lithiasis group.

The duration of ulcer symptoms prior to the onset of the stone symptoms averaged 8.3 years, with a range from six weeks to twenty-five years. In only one case had the ulcer been present for less than two years; and in thirty cases, or 70 per cent of the series, the ulcer symptoms had existed for five years or more prior to the onset of the stone symptoms.

The type and duration of ulcer treatment were difficult to determine in some cases. For purposes of this study, the series was divided into the following groups: (a) Eighteen of the patients received ulcer treatment

6. Hinman, Frank: *The Principles and Practice of Urology*, Philadelphia, W. B. Saunders Company, 1935, pp. 637-639. Cabot, Hugh: *Modern Urology*, Philadelphia, Lea & Febiger, 1936, vol. 2, pp. 601-604; *Biological and Chemical Factors in Stone Formation*, in Berglund, Hilding, and Medes, Gra: *The Kidney in Health and Disease*, Philadelphia, Lea & Febiger, 1935, c. 17. Piersol, G. M.; Bortz, E. L., and others: *Cyclopedia of Medicine*, Philadelphia, F. A. Davis Company, vol. 7, p. 885, and service vol. 1938, p. 727. Tice, Frederick: *Practice of Medicine*, Hagerstown, Md., W. F. Prior Company, Inc., 1928, vol. 6, p. 712. Lewis, Dean: *Practice of Surgery*, Hagerstown, Md., W. F. Prior Company, Inc., 1928, vol. 8, c. 10. Hertzler, A. E.: *Surgical Pathology of the Genito-Urinary Organs*, Philadelphia, J. B. Lippincott Company, 1931, pp. 125-133.

7. Brown, R. C.: *The Results of Medical Treatment of Peptic Ulcer*, J. A. M. A. 95:1144 (Oct. 18) 1930. DeCourcy, J. L.: *Management of Gastric and Duodenal Ulcer*, Am. J. Surg. 12:254 (May) 1931. Emery, E. S., and Monroe, R. T.: *Peptic Ulcer: Nature and Treatment Based on a Study of 1,435 Cases*, Arch. Int. Med. 55:271 (Feb.) 1935. Hinton, J. W.: *Sequelae of Peptic Ulcer Following Medical and Surgical Treatment*, Arch. Surg. 39:137 (July) 1935. Chace, A. F.: *Medical Aspects of Peptic Ulcer with Special Reference to Diagnosis and Treatment*, Am. J. Digest. Dis. & Nutrition 1:866 (Feb.) 1935. Sandweiss, D. J.: *Comparative Results with Dietetic, Parenteral and Surgical Treatment in Peptic Ulcer*, J. A. M. A. 108:700 (Feb. 27) 1937. Kruse, F. H.: *The Complications of Peptic Ulcer and Their Treatment*, ibid. 109:868 (Sept. 11) 1937. Crohn, B. B.: *Gastrointestinal Ulcer: Etiology, Treatment and End Results*, New England J. Med. 218:148 (Jan. 27) 1938. Clagett, O. T.; Trueman, K. R., and Walters, Waltman: *The Problem of Duodenal Ulcer: Collective Review*, Internat. Abstr. Surg. 67:244, 1938; in Surg., Gynec. & Obst., September 1938. Mahle, A. E.: *Peptic Ulcer: Present Status of Its Management*, J. Indiana M. A. 31:452 (Sept.) 1938. Present, A. J.: *Peptic Ulcer*, Ann. Surg. 108:32 (July) 1938. Hurst, A. F., and Stewart, M. J.: *Gastric and Duodenal Ulcer*, Oxford Medical Publications, London, Oxford University Press, 1929. Eusterman, G. B., and Balfour, D. C.: *The Stomach and Duodenum*, Philadelphia, W. B. Saunders Company, 1936. Soper, H. W.: *Clinical Gastroenterology*, St. Louis, C. V. Mosby Company, 1939. Piersol, G. M.; Bortz, E. L., and others: *Cyclopedia of Medicine*, Philadelphia, F. A. Davis Company, vol. 11, p. 680. Reimann, H. A.: *Treatment in General Practice*, Philadelphia, F. A. Davis Company, 1939, vol. 1, pp. 645-646.

8. Brown, C. F. G., and Dolkart, R. E.: *An Evaluation of the Therapy of Peptic Ulcer*, J. A. M. A. 113:276 (July 22) 1939.

9. Keyser, L. D.: *The Etiology of Urinary Lithiasis: An Experimental Study*, Arch. Surg. 6:525 (March) 1923; *Urinary Lithiasis: Its Cause and Prevention*, South. M. J. 25:1031 (Oct.) 1932; *Recurrent Urolithiasis: Etiologic Factors and Clinical Management*, J. A. M. A. 104:1299 (April 13) 1935.

10. Snapper and Polak, quoted by Keyser, L. D., in discussion on Shivers and Henderson.¹³

11. Livermore, G. R.: *Nephrolithiasis*, Am. J. Surg. 28:253 (May) 1935.

12. Winsbury-White, H. P.: *A Brief Review of 426 Consecutive Cases of Urinary Calculus*, Brit. M. J. 1:1204 (June 4) 1938.

13. Shivers, Charles H. deT., and Henderson, K. P.: *A Clinical Study of Forty-Nine Cases of Urinary Calculi Requiring Surgery*, J. Urol. 41:366 (March) 1939.

at the clinics before the onset of their stone symptoms. A modified Sippy treatment was used, involving frequent doses of alkali powders (usually sodium bicarbonate, calcium carbonate and magnesium oxide). Many in this group had also received some treatment before being treated here. The duration of treatment at the clinics, prior to the onset of lithiasis symptoms, ranged from one month to eight years, with an average of two years. In nine cases, or half of the group, treatment had been administered for between one and two years, and in five for less than one year. (b) Sixteen patients had stone symptoms at the time of their first observation here and had had a Sippy type of treatment elsewhere prior to admission here. (c) Nine patients had stone symptoms at the time of their first visit here, but the details and duration of their prior ulcer treatment were uncertain. All in this group had been diagnosed as having peptic ulcer and had received some type of treatment. For seven of this group, it is recorded that alkali provided relief of distress, so probably most of them received some form of alkali therapy.

Other Diseases Outside the Urinary Tract

Disease	Number of Cases
Gallstones	24
Calculated gallstones	7
Diabetes mellitus	13
Syphilis	11
Primary hypertension	16
Coronary disease	6
Pregnancy (onset of lithiasis in pregnancy)	5
Diseases causing bone destruction	20
Chronic osteomyelitis	7
Mastoiditis	4
Tuberculosis of spine with spinal fusion operation	1
Multiple fractures	2
Paget's disease	3
Hyperparathyroidism	3
Aeromegaly	1
Cystinuria	4
Gout	1
Spinal cord lesions with neurogenic bladder	2
Drug addiction	4
Morphine addiction	2
Chronic alcoholic addiction (1 patient developed pellagra)	2
Pulmonary tuberculosis	4
Hyperthyroidism	4
Hypothyroidism	2
Hypernephroma	2
Generalized lupus erythematosus	1

Seventeen patients (40 per cent) had suffered ulcer complications, ten had had hemorrhages, two had had perforations and six had had pyloric or duodenal obstruction. Five had undergone surgical treatment for their ulcers.

In addition to the forty-three patients who had received peptic ulcer treatment there were thirteen patients who had chronic gastrointestinal distress for which they had habitually taken alkalis for relief and in whom the habit had become established prior to the onset of urinary symptoms. These represent 2.6 per cent of the series. Thus there was a total of fifty-six patients, or 11.1 per cent of the lithiasis series, in whom the ingestion of alkalis may have played a role in the formation of the urinary stones.

Other Conditions Outside the Urinary Tract.—The table lists other conditions outside the urinary tract. No attempt was made to study any pathologic involvement of the urinary tract other than lithiasis, for this was deemed to be outside the scope of the present study.

COMMENT

There are several possible explanations for the occurrence of peptic ulcer in 8.5 per cent of our series of patients with urinary lithiasis: 1. Peptic ulcer and urinary lithiasis may have a common cause, possibly

a common constitutional background. This conception is highly speculative, as in neither disease is etiology understood. 2. Urinary lithiasis may be a cause for the development of peptic ulcer. This hypothesis has been discussed by Welch, Coplan and Holmes.¹⁴ They have shown that urinary lithiasis causes a prolonged reflex spasm of the stomach and duodenum, thus producing a definite ischemia of the mucous membranes and thereby interfering with the nutrition and resistance of the mucosa. This hypothesis is attractive, but it does not seem applicable to our cases as the peptic ulcer antedated the stone symptoms by an average of 8.3 years. In only one case (not included in the series) did the onset of the stone symptoms precede ulcer symptoms. It is unlikely that the stones remained silent in all forty-three cases for so many years. 3. The ulcer itself may be an etiologic factor in stone formation. There is no evidence to support this view. 4. Alkali treatment for peptic ulcer may cause lithiasis. It is this hypothesis which most nearly satisfies the conditions of our data. Onset of lithiasis symptoms after the institution of treatment speaks strongly for this relationship. This view is further strengthened by the great similarity between the conditions present in alkali treatment and in certain experimental methods used to produce kidney stones in laboratory animals. The hyperexcretion of crystalloids produced by excessive feeding of substances such as calcium carbonate and calcium oxalate has been widely used to produce experimental kidney stones. As has been mentioned, the operation of this mechanism in other clinical situations is generally recognized. Keyser¹⁵ writes as follows: "Clinically, the evidence for hyperexcretory calculus is abundant. Phosphaturia, oxaluria and uratic showers in gouty disease are known to be frequently associated with stone. Cystine calculi occur with the excessive appearance of an abnormal crystalloid in the urinary tract. The high incidence of calcium phosphate calculi associated with hyperparathyroidism is especially illuminating. Here we have an excessive parathyroid secretion with consequent hypercalcemia, hyperphosphatemia, hypercalcinuria and hyperphosphaturia. In short, there is intensive hyperexcretion of calcium phosphate. Hypercalculus thus approaches the point of establishment as a clinical entity." With such a marked increase in the urinary excretion of crystalloids during alkali therapy, one wonders how this condition has escaped heading the list of clinical examples of hyperexcretory calculus. Our observations, summarized in the table, emphasize the rarity of certain examples usually cited; that is, gout, hyperparathyroidism, cystinuria and xanthinuria.

A sweeping condemnation of the use of alkalis in ulcer therapy is not intended by this study. Our only purpose is to warn the clinician of another potential danger in the intensive use of alkalis. Once recognized, this danger can be guarded against more effectively. The occurrence of alkalosis has long been known as a possible complication of ulcer therapy. As a known pitfall, it has guided the clinician in a more rational course of treatment. Similarly, a knowledge of the possibility of hyperexcretory calculus complicating the course of ulcer therapy may lead to better treatment.

No attempt has been made to determine the incidence of urinary lithiasis in a series of treated peptic ulcer

14. Welch, P. B., Coplan, M. M., and Holmes, R. J.: The Mechanism of Production of Digestive Symptoms Associated with Urologic Pathology, *Am. J. Digest. Dis. & Nutrition* 4: 797 (Feb.) 1938.

15. Keyser, L. D.: Stone in the Urinary Tract: Present Conceptions of Etiology and Preventive Therapy Against Recurrence, *Virginia M. Monthly* 65: 195 (April) 1938.

patients. Such a study would involve the difficult and often inaccurate method of following the subsequent course of patients after they have been under treatment. Peptic ulcer is notoriously a chronic disease and, such being the case, its victims are apt to drift about seeking medical attention from various sources, thereby making their subsequent course inaccessible in many instances. Those patients in whom complications develop which they may consider to be due to their treatment are especially apt to be disgruntled and to ignore a questionnaire, thereby giving faulty sampling. Consequently it is believed that the present method of study gives a more accurate picture as it deals with the past history of patients as recorded on their clinical charts rather than with future developments.

The occurrence of gallstones in twenty-four patients (4.8 per cent) probably is not significant, as they are found in from 5 to 10 per cent of all patients coming to autopsy.¹⁶ However, this observation is not in agreement with Young.¹⁷ He believed that the coexistence of gallstones and urinary stone is infrequent and found only thirteen such instances in 527,000 roentgenograms during a ten year period. Ezickson¹⁸ suggests that there is a relationship between hepatic dysfunction and renal lithiasis.

The occurrence of calculus in twenty patients with diseases causing bone destruction is significant. This probably represents another example of hyperexcretory calculosis, although infection and prolonged immobilization are other factors to be considered in some of the cases. Goldstein and Abeshouse,¹⁹ Pulvertaft,²⁰ Sisk²¹ and others have written concerning this problem.

CONCLUSIONS

1. In a series of 505 patients with kidney or ureteral stones, there were forty-three, or 8.5 per cent, with preexisting treated peptic ulcers.

2. There were an additional thirteen patients, or 2.6 per cent, who had chronic gastrointestinal complaints for which they habitually took alkalis.

3. Thus there were fifty-six patients, or 11.1 per cent, in whom the ingestion of alkali powders may be considered of etiologic importance in the formation of their urinary stones. This is in agreement with theoretical considerations and constitutes the clinical counterpart of stones produced experimentally in laboratory animals by the feeding of crystalloids.

4. The hyperexcretory calculosis which developed in these patients demonstrates a potential danger of alkali therapy for peptic ulcer.

NOTE.—Since this manuscript was completed, a paper by H. L. Kretschmer and R. C. Brown appeared in *THE JOURNAL* (Oct. 14, 1939, p. 1471) entitled "Do Alkalis Used in the Treatment of Peptic Ulcer Cause Kidney Stones?" In a series of 1,260 cases of kidney and ureteral stone, they found only fifteen cases with a history of treated peptic ulcer, or 1.2 per cent. They conclude that theoretically one might expect the alkalis used in the treatment of peptic ulcer to cause renal stone but that the small incidence they found does not support this theory. I am unable to explain the discrepancy between their data and mine.

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COMBINED (ACTIVE-PASSIVE) PROPHYLAXIS AND TREATMENT OF DIPHTHERIA OR TETANUS

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It was stated recently in *THE JOURNAL*¹ that "fifteen years ago Ramon and Laffaille² suggested a new method of prophylaxis against diphtheria. By this improved method the transient passive immunity caused by injecting antitoxic serum is supplemented by a semi-permanent active immunity caused by the simultaneous injection of diphtheria toxoid." Then Frey and Schmid's³ work on the subject was referred to and this conclusion was drawn: "Combined active-passive immunization is not feasible in human medicine, the two types of immunization being incompatible with each other." It was stated: "Frey and Schmid injected 2,000 units of antidiphtheric serum . . . into each of twenty children, followed by single or multiple subcutaneous injection with diphtheria toxoid," whereas in the original text Frey and Schmid stated that their patients received 1,000 or 2,000 antitoxic units intramuscularly simultaneously with 1 cc. of alum toxoid (unsere Patienten erhielten 1.000 bzw. 2.000 Antitoxineinheiten intramuskulär sowie 1 ccm. Alumtoxoid subkutan). The particular fact of single or multiple injection of anatoxin is of great importance. I shall come back to a discussion of it later on.

As was recalled in *THE JOURNAL*, I pointed out with André Laffaille in 1925 that when an injection of tetanic anatoxin is made into a guinea pig in another part of the body the immunizing action of the anatoxin is more or less hindered by the antitoxin. However, this first injection of anatoxin is not useless, for the animal can later be immunized by a second injection of anatoxin alone. This fact led me to the conclusion that active immunity against tetanus is easily produced in laboratory animals by injecting one or, better, two doses of anatoxin some time after the simultaneous injections of antitetanic serum and anatoxin. The results of the experimentation have been the basis of the "combined active-passive prophylaxis and treatment of diphtheria or tetanus."

In 1926, with Christian Zoeller,⁴ I tried this technique in human medicine. Tests made on adults (soldiers) showed that an active antitetanic immunization could be realized by simultaneous injections of antitetanic serum and anatoxin, followed by one or several doses of anatoxin at more or less long intervals. On the basis of these well established principles, serovaccination against tetanus was soon actively put into practice. Over a long period (twelve years) the available results have brought confirmatory evidence of our first attempts.

Thus in France (1933) Sacquépée⁵ gave valuable data concerning 240 wounded men who had received the combined (passive-active) immunization against tetanus according to our method, i. e. simultaneous injections of antitetanic serum and anatoxin and at intervals of two or three weeks two injections of ana-

From the Institut Pasteur.

1. Combined (Active-Passive) Diphtheria Prophylaxis, editorial, J. A. M. A. 113:1884 (Nov. 18) 1939.

2. Ramon, Gaston, and Laffaille, André: *Compt. rend. Soc. de biol.* 92:582 (Aug. 14) 1925.

3. Frey, Leopold, and Schmid, Eddehard: *Ztschr. f. Immunitätsforsch. u. exper. Therap.* 95:436 (June 8) 1939.

4. Ramon, Gaston, and Zoeller, Christian: *Ann. Inst. Pasteur* 41:803 (Aug.) 1927. Ramon, Gaston: *Bull. Acad. de méd.* 121:609 (May 2) 1939.

5. Sacquépée, E.: *Paris méd.* 1:491 (June 3) 1933.

16. Cecil, R. L.: *A Text-Book of Medicine*, ed. 4, Philadelphia, W. B. Saunders Company, 1938, p. 813.

17. Young, W. B.: Coexistent Gallbladder, Renal and Ureteral Stones, *J. A. M. A.* 95:156 (July 12) 1930.

18. Ezickson, W. J.: Liver Dysfunction as Possible Causative Factor in Renal Lithiasis, *J. Lab. & Clin. Med.* 24:836 (May) 1939.

19. Goldstein, A. E., and Abeshouse, B. S.: Urinary Calculi in Bone Diseases, *Arch. Surg.* 31:943 (Dec.) 1935.

20. Pulvertaft, R. G.: Nephrolithiasis. Occurring in Recumbency, *J. Bone & Joint Surg.* 64:559 (July) 1939.

21. Sisk, I. R.: Renal Calculi After Severe Bone Injuries, *Wisconsin M. J.* 25:195 (March) 1936.

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toxin alone. Six months later, 234 men (more than 97 per cent) had an antitoxic response to tetanus equal to one-fiftieth unit or higher. The level stood generally between one-fifteenth and one-fifth unit; this titer is quite a satisfactory immunity.

Patients treated by serovaccination have the same antitoxic response to a subsequent "reinforcing dose" of anatoxin injected several months or a year later, or later still, as patients who have been vaccinated with anatoxin alone. That fact was mentioned in Zoeller's paper. The effectiveness of this "reinforcing dose" has been clearly demonstrated by Sacquépée and Jude⁶ in an extensive and valuable study. Among fifty-one patients who had been given a reinforcing dose of tetanic anatoxin (2 cc.) after having received on account of a wound, a combined passive-active immunization, 96 per cent showed a response of over 1 unit, some of them reaching 10 or even 30 units.⁷ This antitoxic response still in excess of one-third unit, thirty-six (76 per cent) showed a response of over 1 unit, some of them reaching 10 or even 30 units.⁷ This rise in antitoxic titer is identical with the rise following previous vaccination with anatoxin alone.⁸ It appears that an active, strong and permanent immunization can be induced by serotherapy combined with specific anatoxin vaccination.

The principle having been worked out and the practical results being confirmatory, a new treatment of acute tetanus was created. The technic was recently⁹ established by some of my co-workers and myself—Kourilsky, Mme. Kourilsky, Richou, Maccolini.¹⁰ It consists in injecting, as soon as the diagnosis is made, a single and large dose of tetanic antitoxin (150,000 international units, i. e. 75,000 U. S. P. units) and 2 cc. of tetanic anatoxin. Gradually progressive doses are then repeated at intervals of five or six days—2, 4 or 6 cc. for instance. Later, reinforcing doses of anatoxin may be given; they are harmless and of real benefit. Experimental investigations and clinical tests made on patients have brought evidence that active immunization due to injections of anatoxin follows without interruption the passive immunization due to serotherapy. After a reinforcing dose, patients treated with this method have been found with an antitoxic titer of 20 and 50 units per cubic centimeter of blood serum. This method for tetanus prophylaxis, combining both serotherapy and anatoxin therapy, is not only of a great theoretical and doctrinal interest but has become highly important on account of the European conflict.

Simultaneously with this new method of prophylaxis against tetanus, experimentally established in 1925 and applied to human medicine in 1926, a new method of prophylaxis against diphtheria was introduced. Since then the method has been extensively applied in France to immunize nonvaccinated children after a sudden exposure to a widespread diphtheria epidemic. The method is as follows: An injection of diphtheria anatoxin (toxoid) is made and a few minutes later an injection of antidiaphtheric serum. The vaccination is completed with two injections of anatoxin at a fort-

night's interval. Under these conditions the active immunity due to repeated doses of anatoxin is easily superimposed on the passive immunity due to antidiaphtheric serum. The fact has now been clearly demonstrated in France, where the method has been used for over fifteen years and concerns thousands of persons.

As I first mentioned in 1925, and Frey and Schmid last year, a single dose of diphtheria toxoid, whether as alum-toxoid or not, given simultaneously with an injection of antidiaphtheric serum produces only a minimal immunity if any at all. The fact was observed by Paschla¹¹ after it had been observed by many other authors. In a way, the same might be said of a single dose of anatoxin given without an injection of serum. The insufficient protection afforded by the "one dose immunization" has been emphasized by many investigators besides myself.¹² Only persons having a certain amount of diphtheria antitoxin naturally in their blood serum show a rise of the antitoxic titer after an injection of anatoxin given simultaneously with an injection of serum. When two subsequent injections of anatoxin are given under the same conditions, the picture is quite different, the resulting immunity having all the characteristics of active immunity acquired through usual vaccination.

The possibility of producing active immunity against diphtheria by one injection of serum and several injections of anatoxin has also been demonstrated by a new method in the treatment of diphtheria identical with the one now used for tetanus. A massive dose of antidiaphtheric serum is first given (20,000 to 80,000 units according to the patient's age), then repeated doses of anatoxin (0.1 cc., 0.5 cc., 2 cc., 3 cc. and so on) at four or five day intervals, the first dose of anatoxin being injected a few minutes before the serum. At my request this method was applied in some of the Paris hospitals by Robert Debré and Mallet,¹³ René Martin, Delaunay and Richou,¹⁴ Sohler and Jaulmes,¹⁵ Girod¹⁶ and others. More than 200 children or adults have been treated in this way for the last two years. Serologic results afforded by the charts of the antitoxin content of each patient's blood serum confirmed experimental data and gave evidence that a large dose of antidiaphtheric serum does not prevent successive anatoxin injections from producing the appearance and development of active immunity. When patients suffering from diphtheria are treated with both serum and anatoxin, the active immunity succeeds without interruption to the passive immunity due to the repeated doses of anatoxin depends on the individual. Some persons never develop a high antitoxin level and attain that slowly (average of one-third unit). Others have a detectable antitoxin a few days after the injection, the antitoxin titer rising abruptly, reaching 30 or 50 units or higher still. During the period of illness and convalescence, and even long afterward, the antitoxin level in most cases, if not in all cases, is sufficient to insure protection against recurrent attacks of toxoinfection.

6. Sacquépée, E., and Jude, A.: *Compt. rend. Soc. de biol.* 125: 711, 1937; *Rev. d'immunol.* 3: 444 (Sept.) 1937.
7. International units are here referred to (half the American units).
8. Sneath, P. A. T.: *Development of Tetanus Antitoxin Following Administration of Tetanus Toxoid*, J. A. M. A. 102: 1288 (April 21) 1934; *J. Roy. Army Med. Corps* 66: 311 (May) 1936.
9. Ramon, Gaston; Richou, R., and Maccolini, R.: *Bull. et mém. Soc. d'immunol.* 4: 110 and 1103, 1937; *Ramon, Gaston, and others: Rev. d'immunol.* 4: 24 (Jan.) 1938.
10. Ramon, Gaston; Kourilsky, Raoul; Richou, R., and Kourilsky, Simone: *Bull. et mém. Soc. méd. d. hôp. de Paris* 54: 1287 (July 18) 1938; *ibid.* 54: 1442 (Oct. 24) 1938; *Rev. d'immunol.* 5: 432 (Sept.) 1939; *Ramon, Gaston: Compt. rend. Acad. d. sc.* 205: 469 (Sept. 6) 1937.
11. Paschla, Günther: *Klin. Wchnschr.* 18: 7 (Jan. 7); 60 (Jan. 14) 1937.
12. Fitzgerald, J. G.: *Canad. Pub. Health J.* 27: 53 (Feb.) 1936. W. H.: *Duration of Immunity Against Diphtheria Achieved by Various Methods*, J. A. M. A. 109: 1631 (Nov. 20) 1937. Park, Ann. de méd. 42: 314 (Oct.) 1937; *Presse méd.* 46: 1049 (July 2) 1938.
13. Debré, Robert, and Mallet: *Bull. et mém. Soc. méd. d. hôp. de Paris* 54: 1308 (July 18) 1938.
14. Martin, René; Delaunay, A., and Richou, R.: *Bull. et mém. Soc. méd. d. hôp. de Paris* 54: 1394 (Aug. 1) 1938.
15. Sohler, H., and Jaulmes, C.: *Bull. et mém. Soc. méd. d. hôp. de Paris* 54: 1378 (Aug. 1) 1938.
16. Girod, R.: *Thèse, Paris, Matel Vigné*, 1939.

Animal experimentation and numerous investigations carried out over a long period in human medicine have given proof that combined immunization, when correctly applied by one injection of serum and repeated injections of specific anatoxin, (a) is able to superimpose uninterruptedly active immunity on passive immunity, thus insuring a permanent antitoxic immunity against tetanus or diphtheria, (b) realizes the best prophylaxis against tetanus for the nonvaccinated wounded patient and against diphtheria for the nonvaccinated child who runs a special risk of infection, and (c) gives a better chance of success in the treatment of tetanus and diphtheria.

Clinical Notes, Suggestions and New Instruments

A PLEA FOR THE ABOLITION OF THE RETENTION CATHETER IN THE PREPARATION OF PATIENTS FOR PROSTATIC SURGERY

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Few therapeutic measures in urology are more unquestioningly accepted by the profession than the urethral retention catheter in the preparation of patients for surgery directed to the relief of prostatic obstruction. Notwithstanding this almost universal approbation, it is my purpose to plead, on grounds of personal experience and what I consider sound logical considerations, for the abolition of this time-honored device.

Thompson¹ has called attention in recent years to the uselessness or even harmfulness of routine retention catheter preparation for patients whose renal function is essentially normal as shown by dye excretion tests and blood chemistry examinations. My own experience has confirmed this suggestion, and most patients are now submitted to prostatic resection forthwith, as soon as studies have indicated a satisfactory general condition and adequate renal function. In deference to tradition, however, I still cling to a short period of catheter preparation in those cases in which the residual urine is large (over 300 cc.), even if renal function tests are essentially normal. It is therefore with these patients and those whose kidneys are obviously impaired to an important extent that this communication concerns itself.

The transurethral surgical approach to the prostate has perhaps made all urologists more careful students of the anatomy and pathology of the vesical neck and deep urethra. In the course of some hundreds of prostatic resections I have been consistently impressed by the strikingly unfavorable change in the appearance of the bladder and urethra produced by the retention catheter. Following even a short period of such continuous drainage, the vesical neck is uniformly engorged and edematous. Some degree of diffuse cystitis prevails, and the dome of the bladder regularly exhibits an angry spot of bulkous edema from catheter contact, which the experienced cystoscopist is accustomed facetiously to demonstrate to the tyro as a carcinoma of the bladder.

The external indications of this cysto-urethritis are only too familiar to all urologists—the more or less tender urethra with crusted mucopurulent exudate clinging to the tape which fastens the catheter to the penis, and the not infrequent copious oozing of pus around the catheter.

Several years ago I began to wonder whether the retention catheter is not a double-edged sword. Is not operation through a highly inflamed edematous urethra analogous to celiotomy through a pyodermic area or to enucleation of a cataract in the presence of acute conjunctivitis? A method of achieving the undoubted benefits obtained with the retention catheter while avoiding its iniquitous results should be a real boon to urology.

Such a method has been found by resort to interval catheterization, a device which has brought vast and increasing satisfaction during the past three years. No longer are catheters

strapped in. Every three or four hours a male nurse or specially trained orderly slips in a catheter, empties the bladder, and immediately withdraws the catheter. Patients are not disturbed for catheterization during the customary hours of sleep but are relieved if they awake and are uncomfortable. Once daily (or oftener when marked pyuria exists) the bladder is irrigated with 1:5,000 potassium permanganate solution. I believe that irrigations and instillations can be overdone and that frequent chemical irritation of the vesical mucosa may do more harm than good.

The advantages of this technic will soon be apparent to any who try it. Purulent urethritis in the prostatic patient becomes nothing but a memory. Patients are decidedly more comfortable. Since they are not tethered by tubing, physical activity remains unimpaired. At operation the vesical outlet and prostatic urethra appear delightfully free from redness and swelling. Bullous edema is conspicuously absent, a fact of great importance in view of the accurate orientation with respect to ureteral orifices, the verumontanum and other landmarks demanded of the resectionist. Furthermore, I am convinced that preparation by interval catheterization instead of the retention catheter reduces operative hemorrhage and tends to promote smoother convalescence. That this is more than a fond delusion is indicated by the fact that I have been able to convert my local colleagues to this belief.

Several urologists to whom this plan has been described have raised the question whether interval catheterization restores renal function as rapidly as does the retention catheter. Their doubt seems superfluous when it is recalled that the method most closely simulates normal physiologic emptying of the bladder. Granted that the patient's needs are met by complete emptying at intervals of several hours, as is true of the rest of mankind, it would seem illogical to ask him continuously to suffer the trauma of a retention catheter in the interim. It is pertinent to recall that the patient with tabes or any other man who has resigned himself to "catheter life" never wears his catheter but practices momentary insertions as being far less damaging to his urethra.

Other urologists, in personal discussions of this question, have suggested that repeated passage of a catheter might be expected to result in more infection from bacterial contamination than if the catheter was passed once and fastened in place. That this is specious reasoning is indicated not only by my experience but also by the recent work of Stalker and Schulte,² who remark: "Patients with postoperative urinary retention following general surgical procedures are best treated by frequent intermittent catheterization whenever possible. This can usually be done for a period of three to four days or longer without the development of evidence of urinary tract infection. In a case in which a retention catheter has been used, infection invariably develops in twenty-four to thirty-six hours. Once bacteria have developed they rapidly increase in number while the catheter is retained. When intermittent catheterization is employed the increase is not so rapid and in some cases even a decrease is noted." There seems little doubt that constant wearing of a catheter causes much more infection than repeated passages, granted reasonably good technic.

With the retention catheter some rise of temperature during the period of preoperative preparation is admittedly not an uncommon phenomenon. Indeed, there are those who see it as a hidden blessing, a "vaccination" of the urinary tract against postoperative infection. For example, Davis³ says: "In fact a period of fever during the time of preliminary drainage is decidedly the rule rather than the exception and is to be welcomed because of the immunity supposedly conferred. At any rate, high postoperative temperature reactions are relatively far more frequent among those who have not gone through a period of preoperative fever."

Under a program of interval catheterization the preoperative hospital sojourn of the patient is almost uniformly marked by a perfectly flat temperature chart, and epididymitis is rare. Since I am not an adherent of the "vaccination" theory, this

1. Thompson, G. J., and Duchtel, Henry: Transurethral Resection of the Large Prostate, *J. Urol.* 36: 43-56 (July) 1936.

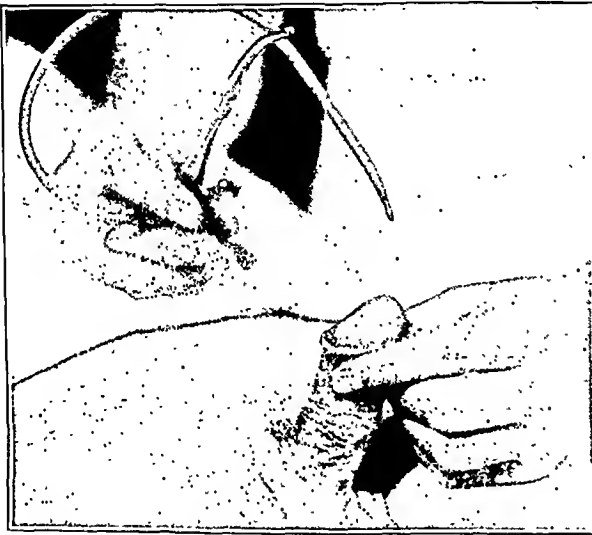
2. Stalker, L. K., and Schulte, T. L.: A Bacteriologic Study of Postoperative Retention of Urine, *Proc. Staff Meet., Mayo Clin.* 14: 730-734 (Nov. 15) 1939.

3. Davis, Edwin: Factors Tending to Minimize Prostatectomy Hazard, *J. A. M. A.* 112: 2485-2488 (June 17) 1939.

is accepted as further evidence of the superiority of interval catheterization over the retention catheter. The quoted statement of Davis conflicts not only with my personal experience but with the fact that vaccine therapy has been practically abandoned in the entire field of urology.

Although one might expect interval catheterization to entail a forbidding amount of routine drudgery in hospital wards, such has not been the case. A method has been adopted which combines speed, simplicity and irreproachable technic. Male nurses and intelligent orderlies with short coaching can execute the maneuver as well as a physician and better than the average intern, whose interest in some of the specialties is notoriously fitful.

The rapid method of catheterization is a no-touch technic, wherein the catheter is fed into the urethra with a sterile hemostat. Only the terminal two or three inches of the catheter is touched by fingers, and this portion does not enter the urethra. Hence gloves are unnecessary and the operator's hands need not be sterile, although I suggest that he wash them briefly with soap and water. A number 16 French coude olive-tip catheter has been found ideal as regards size and ease of entry: smaller catheters waste time, owing to slowness of flow; catheters with round tips are often arrested by the prostatic



Rapid no-touch technic of interval catheterization with No. 16 F. olive-tipped coude catheter. Limp old catheters are not suited to this method.

lobes. A quick dab of one of the newer mercurial antiseptics on the meatus is as effective a preparation for passage of the catheter as scrubbing with green soap, and much less traumatic.

With this "streamlined" technic a well trained orderly can accomplish catheterization of numerous prostatic patients with surprisingly little effort. It is only occasionally, when a very poor-risk patient requires several weeks of such preparation, that the repeated task tends to become onerous. Even then I feel that resulting benefits amply justify this method of preparation for surgery. In the very occasional case in which catheterization is so difficult as to require special methods (metal stylet) or where manipulation causes much bleeding, recourse is still had to the retention catheter. Postoperatively, of course, I use a retention catheter along with all my colleagues, the problem here being much different: temporary suspension of vesical function and control of bleeding by frequent irrigations have become the chief desiderata.

SUMMARY

A plea is made that interval catheterization replace the retention catheter in the treatment of patients being prepared for prostatic surgery. Such a change will minimize infection, promote the comfort of patients, facilitate the operative procedure, reduce operative hemorrhage and lessen postoperative reaction.

9 Exchange Place.

LIVER ABSCESS

R. WYNN MORRIS, M.D., HELENA, MONT.

A robust Austrian smelter worker had been complaining of digestive disturbance and pain in the epigastrium at various intervals for the past few months. Three weeks before admission to the hospital he was ill at home and in bed for four days with chills, fever, malaise and coughing, all symptoms of influenza. He recovered from this illness and returned to work

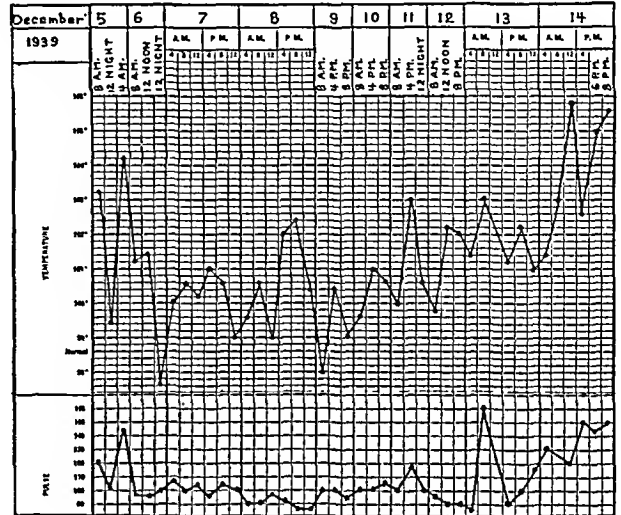


Fig. 1.—Graphic record of temperature.

for four days. He came home from work on the fifth day, sick again with chills and a temperature of 105 F. by mouth. He was immediately taken to the hospital, roentgenograms were made of the chest, and he was treated for pneumonia. Sulfapyridine was given on admission; the temperature dropped and the patient was nauseated, presumably from the sulfapyridine, but his general condition improved. Figure 1 shows the course of the illness until thirty-six hours before the end. He suffered from another severe chill and fever, and twelve hours before death he became deeply jaundiced; his temperature continued



Fig. 2.—Toothpick protruding from ventral surface of left lobe of liver.

to rise, and he died rather suddenly. He was conscious until a few moments before death.

The laboratory observations revealed no changes in the urine. The hemoglobin level was 14.3 Gm., 92.8 per cent, the red blood cell count was 4,510,000, and the white cell count on admission was 10,900; this was increased to 19,950 two days later.

A roentgenogram taken on the day of admission and the second plate, taken five days later, revealed no evidence of pulmonary congestion. Flat x-ray plates of the abdomen.

revealed no evidence of the presence of gallstones or any other foreign bodies.

An autopsy was performed. There was no evidence of pulmonary congestion. The heart was normal in size and there was no defect in the valves. On exploration of the abdomen there was a mass in the epigastrium the size of a grapefruit, composed of adherent omentum, transverse colon, jejunum and the head of the pancreas. All of this mass was in turn firmly adherent to the left lobe of the liver. The liver was removed, and a toothpick was found protruding from the ventral surface



Fig. 3.—Ventral surface of liver, showing toothpick protruding from left lobe.

of the left lobe (figs. 2, 3 and 4). Dissection of the liver revealed a huge abscess, about 4 by 10 cm., across the ventral half of the left lobe. The toothpick passed directly into the encapsulated area of the abscess. The gallbladder was enlarged and inflamed, but no stones were found in the biliary tract. The stomach was extremely large, but there appeared to be no pathologic changes. The portion of the jejunum enclosed in the inflammatory mass was carefully dissected, but no evidence of the site of perforation by the toothpick through the bowel



Fig. 4.—Abscess of liver caused by foreign body (toothpick).

could be demonstrated. The pancreas was large, spongy and greatly congested. The other organs showed no great pathologic changes.

CONCLUSION

An interview with the family revealed that this corpulent man made a practice of lying down after dinner and falling sound asleep. Often he fell asleep with a toothpick in his mouth, and it is logical to assume that at some time during a nap he sighed deeply and aspirated the toothpick into his digestive tract. The wife stated that she never used toothpicks in sandwiches or cakes to hold them together.

850 Helena Avenue.

SYMMETRICAL CORTICAL NECROSIS OF KIDNEYS

CARL HENRY DAVIS, M.D., WILMINGTON, DEL.

Symmetrical cortical necrosis of the kidneys as a puerperal complication was first reported by Bradford and Lawrence in 1898, and the paucity of cases described since their report makes it appear that this is a very rare complication. Most textbooks on obstetrics fail to mention this interesting and highly fatal condition. Approximately forty proved cases have been reported in the medical literature,¹ but as these have occurred in a relatively few clinics it is probable that many more fatal cases have been classified under toxemias of pregnancy. Hendry and Goodwin, while preparing a discussion of this subject for a chapter in Davis's *Gynecology and Obstetrics*, reviewed the fatal cases of "toxemia" at the Toronto General Hospital and located two of symmetrical cortical necrosis of the kidneys. The present brief report is made in the belief that familiarity with this type of lesion as a cause of anuria will lead to the discovery of many more cases. The case of puerperal symmetrical cortical necrosis of the kidneys to be reported here in detail has been mentioned by Hendry and Goodwin in their discussion as an unreported case.

REPORT OF CASE

History.—Mrs. B. Z., a Negro aged 24, married seven years, who had had no previous pregnancy, had her last period July 5, 1937. She registered at the outpatient department of St. Francis Hospital December 15. Her past medical history was negative except for the usual diseases of childhood. She had nausea and some vomiting during the early weeks of pregnancy. Her physical examination was negative: the blood pressure was 130 systolic, 80 diastolic, and the urine showed a faint trace of albumin and an occasional pus cell but no casts. Jan. 12, 1938, she complained of headache and dizzy spells; the blood pressure was still 130/80, she weighed 134 pounds (61 Kg.), and the urine still had a faint trace of albumin. January 25 she had a head cold and slight headache; the blood pressure was 116/70, she weighed 140½ pounds (64 Kg.), and there were a trace of albumin and many white blood cells in the urine but no casts. February 8 she had no complaints; the blood pressure was 120/70, her weight was 144 pounds (65 Kg.), and there were a trace of albumin and a few white blood cells but no casts in the urine. February 22 she had a slight head cold, the blood pressure was 116/70, her weight was 152 pounds (69 Kg.) and there were trace of albumin, a few white blood cells and no casts in the urine. March 8 a slight enlargement of the thyroid was noted, the blood pressure was 130/80, she weighed 152¾ pounds (69 Kg.), and there were a trace of albumin, a few white blood cells and no casts in the urine. March 22 she complained of vomiting and slight edema of the ankles; the blood pressure was 130/95, she weighed 154 pounds (70 Kg.) and the urine, which was examined after she left the hospital, showed a solid clot of albumin by the heat method. Unfortunately a laboratory technician recorded this finding without reporting it to the nurse in charge of the outpatient service. The patient walked into the hospital, apparently in active labor, on March 25, 1938. An hour later the nurse who was making the preparation reported more than normal bleeding and a diagnosis of ablatio placentae was made. No urine was obtained, but the blood pressure was 180/120. She was taken to the operating room and surgically prepared for examination. Vaginal examination showed a rigid, undilated cervix. She had a boardlike abdomen typical of ablatio placentae. Just before the gas was started she had a convulsion, her only one. The gas-ether anesthesia was started at 1:25 p. m. and ended at 1:55. When the abdomen was opened a fair amount of bloody fluid was found in the peritoneal cavity, and the uterine wall showed evidence of extensive hemorrhage. When the uterus was opened it was found that the placenta was completely separated and there was a large amount of blood clot within the uterus. After the dead fetus and placenta were removed the body of the uterus was removed, owing to the

1. For bibliography and photomicrographs see Gaspar, I. A.: *Bilateral Cortical Necrosis of Kidneys*, *Am. J. Clin. Path.* 8:281-301 (May) 1933.

extensive hemorrhage in the uterine muscle, both tubes and ovaries being left in. Following the operation the patient was given 50 cc. of 50 per cent dextrose intravenously, 1,000 cc. of physiologic solution of sodium chloride subcutaneously, and one-fourth grain (0.016 Gm.) of morphine hypodermically. At 5 o'clock her blood pressure was 105/80 and her condition seemed quite satisfactory. The next morning the patient complained that she could not see, and the eyegrounds were examined by Dr. Tybout, who noted that in the right eye the optic nerve disk was slightly congested but that the margins were well defined and there was no edema. The retinal veins were full and dilated but not engorged. The retinal arteries showed evidence of hypertension. Scattered throughout the retina were punctate dots of scattered gray infiltration with one large patch between the fovea and the margin of the optic disk. This would seem to indicate a subacute retinitis of one or two weeks' standing. The vision was not taken. The same conditions were present in the left eye as in the right eye with the exception that points of infiltration throughout the retina were much more scattered and smaller. The sudden total blindness was regarded as due to some undetermined central disturbance along the course of the optic tract.

There was an almost complete suppression of urine during the patient's entire postoperative course, notwithstanding attempts to stimulate the kidney function through the use of 50 per cent dextrose solution intravenously, hot packs and warm irrigations of the bladder. The type of operation ruled out the possibility that the ureters might be ligated, and a disorder of the glomeruli was considered the probable cause of the anuria. Not more than 2 ounces (60 cc.) of urine was obtained during a period of twenty-four hours. There was a slight elevation of temperature during the day following the operation, and on March 27 it remained above 100 F. all day, reaching 100.8 F. at 4 and 8 p. m. The next day the temperature dropped to 98 F. and remained slightly subnormal until the time of her death at 6 a. m. April 5. Her postoperative pulse varied from 70 to 90 until just before death, when it went up to 120. A partial autopsy was performed by Dr. D. M. Gay at 9 o'clock, three hours after death.

Necropsy.—The lower midline abdominal incision, 12.5 cm. long, showed normal processes of healing. There was no evidence of infection of the wound. Grossly, the heart, pancreas, liver, gastrointestinal tract and genital organs showed no deviation from normal. The surfaces of the peritoneal cavity were smooth and glistening except in the pelvis, where a few young fibrous adhesions united the omentum with the stump of the uterus which was removed at operation. A few cubic centimeters of thin clear yellow fluid was present. The spleen was about twice normal size and its capsule was thin over a smooth dark purple surface. On section the splenic substance was soft in consistency and could be easily scraped away. The kidneys were similar and of approximately normal size. The capsule stripped spontaneously from a smooth, remarkably pale light brown surface. On section the cortex was a similar light gray brown, sharply demarcated from the kidney medulla, which was of approximately normal color. The calices and pelvis were normal; the ureters were slightly dilated.

Microscopic examination of sections of the pancreas gave negative results. There was a moderate degree of congestion of the spleen, and the pulp cells were abundant with a few local groups of plasma cells. In general the histologic picture of the liver appeared normal. However, there was evidence of reaction to injury in the vicinity of the portal spaces, characterized by slight variation in size and staining intensity of the liver cell nuclei and occasional mitotic figures. None of the cells appeared necrotic and there was no cellular infiltration. In the kidneys these striking cortical changes were infarcts due to occlusion of the small branches of the renal artery by organizing thrombi. The infarcted portion extended from the medulla to the capsule, with the frequent exception of a narrow subcapsular zone of living tissue nourished by capsular vessels. Tubular and glomerular formation could be made out but all cellular detail was lost. Nuclear fragments were scattered through the bright red staining necrotic cytoplasm. The arteries were occluded by masses of old red staining fibrin, which was

frequently almost entirely replaced by young fibroblasts growing from the subendothelial tissue. Many of the collecting tubules were filled with plugs of albuminous material.

The anatomic diagnosis was symmetrical cortical necrosis of the kidneys and postpartum state.

COMMENT

A review of the various cases reported in the literature indicates that the clinical background of nearly all cases proved symmetrical cortical necrosis of the kidneys was suggestive of preeclampsia or a nephritic toxemia. More often the toxemic picture developed shortly before the onset of labor. Thus far there are no characteristic symptoms or manifestations which enable one to predict the development of symmetrical cortical necrosis. Premature delivery of a fetus, dead and frequently macerated, usually followed at once by anuria, has been the rule. However, Jardine in 1910 delivered a toxic woman of live twin girls, weighing 4 and 4½ pounds (1,814 and 2,040 Gm.) respectively; subsequently anuria developed and the patient died in convulsions two and a half days later. She had extensive liver damage as well as symmetrical cortical necrosis. In at least one third of the reported cases there was evidence of retroplacental hemorrhage or ablatio placentae. Incomplete information, as in our case, makes it impossible to state whether or not anuria preceded the death of the fetus.

Curiously, these patients exhibit few if any of the classic uremic symptoms, the clinical picture associated with the suppression resembling more closely that associated with bilateral ureteral obstruction. Progressive retention of nitrogen in the blood is commonly reported.

It has been assumed, since the diagnosis is usually based on an autopsy report, that symmetrical cortical necrosis of the kidneys is a fatal condition, but there is apparently one authentic case in which recovery occurred, following decapsulation. Arthur Crook in 1927 reported a case of postpartum anuria in which recovery followed decapsulation of the kidney. A portion of the renal substance removed at the time of the operation showed necrosis of the glomeruli and tubules and engorgement of the glomerular capillaries and tubules and smaller vessels of the cortex. It is fortunate that there is Crook's microscopic evidence of necrosis in a case in which recovery occurred, since it indicates that some degree of cortical necrosis may occur in cases in which there is a period of anuria without sufficient involvement to cause death. Arnott and Keller (1933) reported a case of anuria caused by cortical necrosis in which the patient lived thirty-two days, and they describe signs of progressive improvement shortly before the patient died. Gibberd (1936) reported that a woman lived with some evidence of improvement for twenty days, eventually dying, he believes, from her profound anemia; the pathologic manifestations were typical. Within two years Gibberd observed two other patients clinically diagnosed as having cortical necrosis, who recovered under medical management. He is of the opinion that symmetrical cortical necrosis may not be such an uncommon condition, believing that for every fatal case there may be a number with a less extensive and therefore nonfatal involvement. I have already stated that in my patient, who lived eleven days, there was microscopic evidence of a healing process in the kidney substance. The medical management was quite similar to that suggested by Gibberd.

A review of the cases reported in the literature indicates a general failure to describe the condition of the adrenals. Unfortunately we do not have the adrenals from the case described in this paper. Jardine and Teacher in their paper (1911) give the following description of the microscopic appearance of the adrenal in one of the cases reported:

"The suprarenal showed pronounced cloudy swelling affecting both cortex and medulla. There were also patches in which the cells were separated from one another as if in an early stage of necrosis, and there were a few areas in which they were quite definitely necrotic. These were seen both in the cortex and in the medulla. They were very small. The blood vessels were intensely gorged with blood, but no definite thrombosis was found, and the little patches of necrosis did not suggest infarction." It is interesting to note that grossly "the supra-

renal bodies appeared to be normal." Gaspar in his paper (1938) says of the pancreas and adrenals "moderate passive congestion."

A review of the cases of symmetrical cortical necrosis of the kidney reported in the literature and a careful study of all data available in the case herewith reported suggests that the kidney condition is a pathologic manifestation of an extremely severe toxemia of pregnancy. Many of the women who died after varying periods of anuria had convulsions. With few exceptions the women who have died from this condition had some evidence of a more or less severe toxemia of pregnancy before the intra-uterine death of the fetus. The case reported in 1926 by J. C. Hirst furnishes a notable exception, as the blood pressure was normal and the urine contained neither albumin nor casts when the patient was admitted to the hospital two days after an easy spontaneous delivery of a badly macerated seven and one-half month's fetus. The toxin, whatever its nature, must be extremely potent, since it has killed practically all the infants in utero in addition to causing extensive damage to both kidneys and lesser degrees of damage to other vital organs. While liver damage is commonly described, it is not typical of that expected in a case of fatal eclampsia. Nevertheless, it would seem that this condition should be classified under toxemia of pregnancy, possibly as an atypical variety of eclampsia.

A sudden abnormal increase in weight is the most common early sign of impending toxemia. It will be noted that in the case reported in this paper there was a gain of 8 pounds (3.6 Kg.) between February 8 and February 22, without an increase in blood pressure or change from the usual slight trace of albumin. The severe toxemia was not apparent until four weeks later. My experience indicates that all patients who show any such sudden increases in weight should have bed rest, elimination of sodium salts, restriction of fluids to a normal intake and adequate catharsis. This type of treatment enables one to control most cases of impending toxemia. Such treatment might have saved this patient if it had been instituted in February.

Medical Arts Building.

SOLUTION OF GALLSTONES

C. M. BURGESS, M.D., HONOLULU, T. H.

Generally speaking, surgery of no other portion of the human body requires such fineness of judgment and care in execution as does that of the biliary tract. Especially is this true in those cases (and they are seen frequently) in which there has been a previous cholecystectomy or cholecystotomy and then the clinical manifestations of obstruction of the common duct appear. It is these cases that tax the surgeon's skill, both because of the technical problem involved and because they are seldom even fair risks.

Any effective substitute procedure, even though it is applicable to an exceedingly small group of these cases, is most welcome. In order to dissolve a stone from the common duct it is plain that certain definite conditions must be present. The stone must be situated so that it may be bathed directly with the solvent used—so that either a tube drain must be placed in the common duct or there must be a biliary fistula. Secondly, the stone must be soluble. This implies that it must be either pure cholesterol or formed of small fragments bound together by cholesterol. The fact that few stones fall in this group greatly limits the use of this procedure. If the stone is of the type in which cholesterol is only the binding agent and the solvent merely fragments it, there must be a sphincter capable of responding to drugs—that is, it must dilate at the proper time. That a normal sphincter will respond to drugs has been definitely shown both by animal and by human experimentation. Morphine is one that contracts the sphincter while amyl nitrite or glyceryl trinitrate causes relaxation. Also the procedure must be carried out with care. Ether seems

the most favorable agent but it volatilizes at body temperature, and it is conceivable that pressure so generated may be of such force as to cause damage to the delicate biliary tree. However, this can be recognized by the operator, since dilatation gives rise to pain and discomfort to the patient. A certain limited amount of positive pressure is thought to be desirable in this procedure.

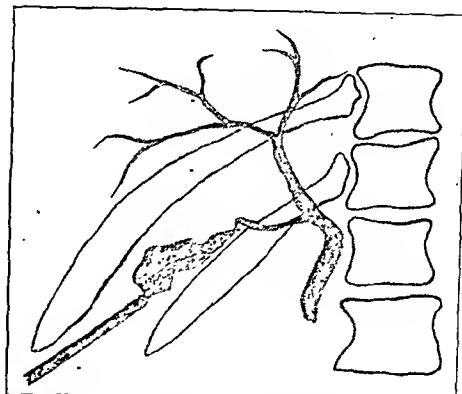


Fig. 1.—Tracing of roentgenogram showing that opaque medium does not pass ampulla. Biliary tree is well outlined.

Such a case was recently seen at the Clinic:

J. B. L., a man aged 42, a Caucasian, was seen in 1934 with what appeared to be an attack of gallstone colic. It was characterized by flatulence and epigastric pain of sudden onset and intermittent type, accompanied by nausea and vomiting. He had had several such attacks during the previous two years but of milder nature. The pain had no relation to meals and was not relieved by sodium bicarbonate. Physical examination showed slight tenderness over the gallbladder and little else. A gallbladder series at that time showed very poor function, and suspicious shadows were interpreted as being stones. Cholecystectomy was advised but was refused. The attack subsided and the patient had no symptoms referable to the gallbladder until Feb. 5, 1938, four years later.

The symptoms on February 5 were similar to those in previous attacks but more severe and were accompanied by fever, leukocytosis and more marked local manifestations. The patient was treated symptomatically at home for a day against the advice of his physician, but on the second day the symptoms and signs grew more alarming and he consented to hospitali-

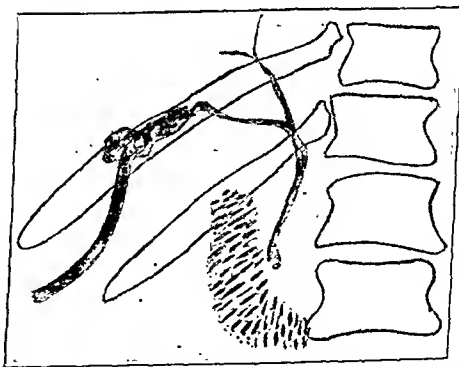


Fig. 2.—Tracing of roentgenogram taken after two injections of ether, showing some diodrast in the duodenum. Also shadow which might be a stone near the ampulla. Biliary tree is faintly demonstrated.

zation. On the third day an emergency operation was done. His condition was only fair; he was very toxic, the temperature was 101 F. and the white blood count was 21,000, with a high polymorphonuclear count.

At operation an empyema of the gallbladder was found. Because of the acute and extensive involvement and because

of the patient's poor condition, only the removal of all readily available stones plus a cholecystotomy were done. Convalescence was very smooth and the patient was discharged with a draining biliary fistula on the tenth hospital day.

The drainage became less and a week later it ceased. This was followed by general malaise, fever, nausea and epigastric pain. A stone in the common duct was suspected and on March 1 almost complete obstruction at the ampulla was demonstrated by injection of diodrast into the fistula (fig. 1). Some of the stones removed at operation were placed in ether and found to dissolve almost immediately. Others became fragmented into fine particles that appeared to be organic.

The technical difficulty of exploring the common duct after the severity of this inflammatory process was considerable. All conditions for attempted solution of the stones seemed favorable, so it was decided to try the method described by Pribram¹ in 1935 and more recently by Walters and Wesson,² of the Mayo Clinic. On March 2, nearly a month from the date of the operation, 5 cc. of ether was injected into the fistula and the patient was given $\frac{1}{100}$ grain (0.6 mg.) of glyceryl trinitrate by mouth. A no. 12 catheter and a 10 cc. Luer syringe were used for the injection, which was done with care; at the first indication of pain the tube was released. Ether could be noted in the breath almost immediately. Following this there was a moderate reaction, consisting of belching and epigastric pain. As soon as this distress subsided, 2.5 cc. more of ether was injected, 7.5 cc. in all being given. Considerable discomfort continued throughout the night, but the drainage from the tract seemed less.

March 3 the injection of ether was repeated and the patient at the same time inhaled an amyl nitrite pearl. March 4 the patient felt so poorly and so much bile was draining that

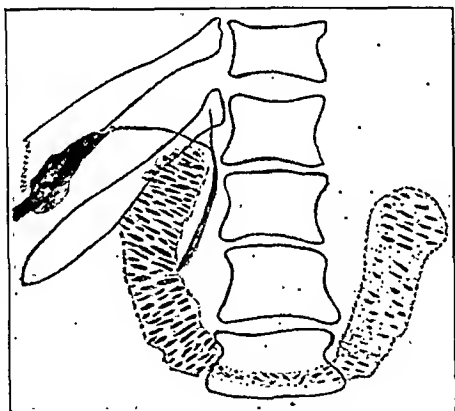


Fig. 3.—Tracing of roentgenogram showing functioning ampulla with no dye in the finer radicles.

no injection was done. At this time the stool was reported negative for bile.

March 7 (five days after first injection of ether) another diodrast injection of the tract was made which showed a considerable amount, perhaps 10 per cent, of the opaque solution passing into the duodenum (fig. 2). He received another injection of 5 cc. of ether on March 8, and 10 cc. was injected again on March 9, the patient inhaling a pearl of amyl nitrite each time. The last two injections gave rise to only slight reactions.

On March 11 an injection of diodrast showed a normal functioning duct and ampulla (fig. 3). The catheter drain was removed from the tract and prompt healing ensued. The patient has had no symptoms referable to the biliary tract to date, a period of twenty-three months.

1. Pribram, B. O.: New Methods in Gallstone Surgery, *Surg., Gynec. & Obst.* 60: 55-64 (Jan.) 1935.

2. Walters, Waltmann, and Wesson, H. R.: Fragmentation and Expulsion of a Common Duct Stone into the Duodenum Using Ether and Amyl Nitrite: Preliminary Report, *Proc. Staff Meet., Mayo Clin.* 12: 260 (April 28) 1937.

SUMMARY

The case here presented is instructive and interesting from several points of view: First, it brings up again the time proved fact that stones in the gallbladder, although they may lie symptomless for years, may ultimately give rise to disease and, as in this case, seriously threaten the life of the patient. Second, it emphasizes the value of visualizing the biliary tract in cases presenting either drainage of the common duct or a persistent fistula. This is a harmless procedure which gives information that cannot be had in any other way. Third, it definitely shows that certain stones can be dissolved or at least fragmented so that they will pass the sphincter, though this solubility is unfortunately not a characteristic of gallstones in general. The knowledge that certain stones are soluble if they are available to a direct bath in ether is a real addition to our armamentarium of treatment in these constantly serious technical problems of common duct stones.

The injection of ether into the biliary tract to dissolve gallstones at first consideration appears to be a heroic measure. However, it has been done in enough instances to make one feel safe in its use when done properly. It is plain that this therapeutic measure can be applied in only a limited number of cases.

881 Young Street at Thomas Square.

SUBACUTE BACTERIAL ENDOCARDITIS SUCCESSFULLY TREATED WITH SULFANILAMIDE

REPORT OF WELL ESTABLISHED CASE EIGHTEEN MONTHS AFTER RECOVERY

JACOB HEYMAN, M.D., NEWARK, N. J.

This case of subacute bacterial endocarditis is presented as one in which the most rigid criteria of diagnosis and recovery have been observed. The important feature was the treatment with small doses of sulfanilamide over a long period. The value of small doses has been demonstrated by Ellis¹ in a report of two cases treated with sulfapyridine. Unfortunate circumstances interrupted the treatment, however, and eventually both patients died. Spink and Crago² observed the lack of a definite relationship between the amount of sulfanilamide in the blood and its effect on the bacteremia. In one of their cases under treatment the blood was rendered sterile at as low a level as 3.1 mg. of sulfanilamide per hundred cubic centimeters of blood.

In view of the fact that the disease is almost invariably fatal, and since attempts at specific therapy have thus far proved discouraging,³ a detailed description of this case seems warranted.

REPORT OF CASE

Mrs. G. B., aged 38, seen in my office Jan. 30, 1938, complaining of headaches, malaise and sweats, had a questionable history of rheumatic fever in childhood, but heart disease was said to have been discovered when the patient was 2 years old. Having treated her for a minor ailment in September 1937, I was aware of the presence of a patent ductus arteriosus.

On examination the patient weighed 105 pounds (47.6 Kg.) and was 4 feet 9 inches (145 cm.) tall. The heart was enlarged to percussion and the apex beat was palpably displaced downward and to the left.⁴ There was a murmur over the pulmonic area heard in systole and diastole and a harsh, blowing apical systolic murmur transmitted to the axilla. The temperature was 100 F. and the pulse 100 and regular.

1. Ellis, G. R.: Treatment of Subacute Endocarditis with M & B 693 (Sulfapyridine, Sulfanilamide Derivative), *Lancet* 2: 1522 (Dec. 31) 1938.

2. Spink, W. W., and Crago, F. H.: Evaluation of Sulfanilamide in the Treatment of Patients with Subacute Bacterial Endocarditis, *Arch. Int. Med.* 64: 228 (Aug.) 1939.

3. In a recent article Kelson and White (A New Method of Treatment of Subacute Bacterial Endocarditis, *J. A. M. A.* 113: 1700 (Nov. 4) 1939) report the combined use of sulfapyridine and heparin in a series of six cases of which three were symptom free for nineteen weeks, eighteen weeks, and four weeks respectively. Although this was a preliminary report, the results seem promising. Since heparin was used in this series, it does not come within the scope of the present article.

4. Recent x-ray films taken in February 1940 revealed the type of heart shadow usually seen in patent ductus arteriosus. The esophogram in the right oblique view showed a normal left auricle.

Despite the absence of joint symptoms, rheumatic fever was suspected, and accordingly the patient was advised to remain in bed. For the following week or two the headaches, fever and tachycardia continued and the sweats gradually increased in severity and were accompanied by chills. The temperature varied from 100 to 102 F. and the pulse from 100 to 120. There were no petechiae and no discernible embolic phenomena, but the patient appeared increasingly septic. Bacterial endocarditis was suspected and hospitalization was advised. The patient rejected the suggestion but later entered the Hospital of St. Barnabas⁵ in the service of Dr. W. D. Miningham, remaining there from March 1 to April 22, 1938.

During her stay in the hospital her temperature was irregular, ranging from 101.5 to 104.6 F. Her pulse varied from 98 to 130 and on one occasion dropped to 50 for a brief period. On admission the hemoglobin reading was 74 per cent and erythrocytes numbered 4,080,000 per cubic millimeter. The leukocyte count was 9,800 with 80 per cent polymorphonuclear cells. The urine was normal except for the presence of 4 or 5 erythrocytes per high power field. A blood culture taken on March 2 showed 86 colonies of *Streptococcus viridans* per cubic centimeter of blood on March 5. Another taken on March 14 showed 35 colonies of *Streptococcus viridans* per cubic centimeter on March 17.

While in the hospital her condition became progressively worse. The headaches increased in intensity and she was almost constantly fatigued and listless. On March 21 a dry unproductive cough developed which persisted for weeks after her discharge. On March 27 the patient experienced a severe shaking chill which lasted thirty minutes. On April 1 she suffered a sudden, severe pain in the right side of the chest, accompanied by a chill which lasted for an hour. During this period she began to complain of pains, at times generalized but usually in the thoracic region, accompanied by dyspnea. In the latter half of her hospital stay the pain became so severe that she often required three or four hypodermic injections of morphine sulfate or dilaudid hydrochloride daily for relief. From March 6 to April 2 the patient received five blood transfusions in addition to the usual supportive measures. She was discharged in "critical condition" against advice on April 22 and left the hospital by ambulance.

Within a short time after her discharge I was recalled as her attending physician. At this time she was considerably emaciated (her exact weight in June was 63 pounds [28.6 Kg.]), and extremely pale and toxic. The temperature was 104 F., the pulse was rapid and irregular and the chills and sweats were more disturbing. Pains in the chest continued to be severe, occurring in the upper anterior part of the chest, left or right, and at either base posteriorly. A smothering type of dyspnea accompanied the pain, particularly when it was localized over the precordium. Cardiac action had now become more violent, fibrillation occurred frequently and the murmurs became coarser and were accompanied by thrills. There was no evidence of petechiae, although during the ensuing few months there was clinical evidence on one occasion of a splenic infarct and on other occasions of minor pulmonary emboli. The latter were always associated with pain in the chest and severe shaking chills lasting thirty minutes or longer.

In the early part of May treatment with sulfanilamide was started. The patient received 60 grains (4 Gm.) on the first day, 40 grains (2.6 Gm.) daily for the next two days and approximately 20 to 30 grains (1.3 to 2 Gm.) daily for three months. It was not possible to obtain blood counts and blood sulfanilamide determinations; hence it was necessary to rely solely on clinical observations. The patient tolerated sulfanilamide very well, however, and at no time was there jaundice or cyanosis. The only toxic symptoms noted were anorexia and periodic vomiting, which on two or three occasions necessitated discontinuance of the drug for a period of one day. The temperature and pulse gradually fell shortly after the institution of sulfanilamide therapy, although there was no sudden, dramatic decline. Fever, chills, sweats, headache, chest pains and dyspnea continued with gradually lessening severity

until late in August. The patient was now less septic, the temperature remained nearer normal and the disease appeared more benign. The dosage was decreased and the patient received no more than from 15 to 20 grains (1 to 1.3 Gm.) daily.

In October there was considerable subjective improvement and the temperature was normal except for an infrequent slight elevation. Sulfanilamide was discontinued and the patient began to get out of bed for short periods. Two weeks later there was a rise in temperature to 100.5 F. and a recurrence of subjective complaints. She was ordered back to bed, following which the temperature and symptoms subsided promptly.

By the end of November the temperature was normal, the pulse varied between 96 and 100 (the pulse was rapid prior to illness) and chills and sweats had completely disappeared. She was allowed out of bed and sulfanilamide was permanently discontinued. From that time (November 1938) to the present (May 1940) there has been no evidence of fever. (The patient had been instructed to take her temperature once or twice a day during that period.) Her appetite had improved, her weight was increasing and she rapidly resumed her normal routine of living. She has, furthermore, shown none of the characteristics of "bacteria-free"⁶ cases. Clinically, therefore, her recovery may be dated from November 1938, a period of eighteen months. Although she was well in October, there was a slight rise in temperature for a short period during that month.

The patient was last examined Feb. 11, 1940. Her weight at that time was 109 pounds (49.4 Kg.), and her pulse was 92, regular and of good quality. The mitral systolic murmur at the apex was no longer audible, while the murmur over the pulmonic area due to the patent ductus arteriosus was still present. The spleen was not palpable.

On Oct. 14, 1939, eleven months after clinical recovery, blood studies were undertaken at the laboratories of the Newark Beth Israel Hospital through the courtesy of Dr. William Antopol. A blood culture taken and examined by Dr. Philip Levine was sterile after three weeks' incubation; the hemoglobin reading was 92 per cent and the erythrocyte count 4,720,000. The leukocyte count and smear were normal. The sedimentation rate was 25 mm. after one hour and 45 mm. after two hours. Another blood culture taken on November 7 remained sterile after three weeks, and a third taken on Feb. 7, 1940, was likewise sterile. Examinations of the urine have been repeatedly negative.

COMMENT

Dr. Emanuel Libman became interested in this patient and examined her on Oct. 12, 1939, and again on Nov. 13, 1939, expressing the opinion that the case represented an authentic curc. He called my attention to an unusual type of erythema on the volar aspects of both hands and the soles of both feet. The eruption had been more pronounced at the height of her illness, involving the palmar surfaces of both hands in a vivid symmetrical erythema sparing only the center of the palms, with a similar eruption on the soles of the feet. It has since faded considerably and now involves mainly the thenar and hypothecar eminences and volar aspects of the distal parts of the fingers. On the feet, only the outer aspects of the soles are affected. There is no reference to this lesion in the literature, although it was described by Dr. Libman in 1928.⁷

Dr. Libman has contributed some interesting comments in reference to the rash noted in this case. Referring to his lecture at the New York Post-Graduate Hospital, he writes⁸ as follows concerning this case:

"I spoke then of occasionally observing in cases of subacute bacterial endocarditis a 'brilliantly colored erythema of the palms of the hands and the soles of the feet.' Of course, one sees milder grades of this lesion under other conditions and therefore must be careful in evaluating it for diagnostic purposes. In your case the erythema was still quite marked when I saw the patient for the first time. I imagine that it was more intense during the active stage.

6. The term "bacteria-free" is used by Emanuel Libman (A Consideration of the Prognosis in Subacute Bacterial Endocarditis, *Am. Heart J.* 1: 25 [Oct.] 1925) in referring to those patients who have lost the infection but in whom residual or sequelae are clinically manifest.

7. From the unpublished records of a lecture on endocarditis delivered by Libman at the New York Post-Graduate Hospital, October 12, 1928.

8. Libman, Emanuel: Personal communication to the author.

5. Hospital records were obtained through Dr. Miningham.

"Occasionally this erythema puts one on the track of the diagnosis in subacute bacterial endocarditis. In my experience it is located in the same areas in which one usually finds the Osler lesions."

Although remissions of varying degree occur in subacute bacterial endocarditis, a review of the case here reported would serve to demonstrate that this represents a cure rather than a remission. The striking change in a septic patient weighing 63 pounds, who now weighs 109 pounds and has been free from symptoms and fever for over a year, speaks against the possibility of a remission. Added to this are negative blood cultures, a hemoglobin reading of 92 per cent and an essentially normal, if slightly elevated, sedimentation rate. Since cases of spontaneous recovery have been reported, the question arises whether this patient would have recovered spontaneously without treatment. Dr. Libman has reported four such recoveries in his first series of 150 cases, or 3 per cent, in the form of the disease to which this case corresponds, namely "cases of usual type." The favorable response of this patient to sulfanilamide may have been merely coincidental. Yet, if this is attributed to coincidence, it still leaves unexplained the recurrence of fever and symptoms when sulfanilamide was discontinued in October 1938 and their disappearance when therapy was resumed.

It must be emphasized that the patient was given unusually small doses. Our concept of sulfanilamide therapy has been based on its early use in acute diseases with a relatively short and stormy course, and it has been natural to think of the drug in terms of large, so-called effective dosage. In a more chronic disease, such as subacute bacterial endocarditis, which requires prolonged therapy, it is reasonable to assume that smaller doses would seem preferable. Cases have been reported, notably one by Major and Leger,⁹ in which large doses in spite of obvious effectiveness did not influence the final outcome of this disease.¹⁰ Massive doses may perhaps be of value in cases of early involvement. However, when thickened vegetations exist supplying sustenance to ever increasing colonies of bacteria, it is difficult to conceive how a short intensive treatment could effect a permanent cure.

Qualified observers have expressed discouragement over the use of sulfanilamide in subacute bacterial endocarditis. Such extreme pessimism seems premature, since the possible schemes of therapy with this group of chemicals have not all been exhausted.

In this case small doses were used for the following reasons:

1. Dealing with a protracted disease, I felt that the dosage should be so apportioned that sulfanilamide could be administered throughout the whole course of the disease. Were I to have employed so-called standard dosage, it might have been necessary to discontinue the drug after three or four weeks.
2. The patient required less than the average dose because of her weight. The dose given might have been considered normal except for the fact that she received as little as 15 grains daily in October 1938 after she had gained at least 20 pounds (9 Kg.).
3. Without the benefit of laboratory aid, the risk of erring on the side of underdosage rather than overdosage was deemed more advisable.

SUMMARY AND CONCLUSIONS

1. In the case of subacute bacterial endocarditis here reported, positive blood cultures established the diagnosis. In this case small doses of sulfanilamide were given over a period of six months.
2. It is felt that small dosage maintained over a long period of time merits consideration in the treatment of this disease.
3. The treatment of subacute bacterial endocarditis with sulfanilamide or its derivatives should not be hastily abandoned if results are not immediate; on the contrary, it should be continued persistently so long as the drug is tolerated.

55 Oxford Street.

9. Major, R. H., and Leger, L. H.: Recovery from Subacute Infectious Endocarditis Following Protosil Therapy, *J. A. M. A.* **111**: 1919 (Nov. 19) 1938.

10. Bliss, Eleanor A.; Long, P. H., and Feinstone, W. H.: The Differentiation of Streptococci and Its Relation to Sulfanilamide Therapy, *South. M. J.* **31**: 303 (March) 1938.

Special Articles

CONFERENCES ON THERAPY

THE TREATMENT OF BLOOD DISORDERS

III. THE USE OF TRANSFUSIONS

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors. The next report will concern "The Treatment of Blood Disorders: IV. Rocutgen Therapy."

DR. EUGENE F. DU BOIS: Today we continue the subject of the treatment of blood disorders and discuss the use of transfusions. Dr. Forkner will talk on the clinical aspects.

CLINICAL ASPECTS OF TRANSFUSIONS

DR. CLAUDE E. FORKNER: Transfusion, as you know, has been recommended for the treatment of almost every disease. There has been a great deal of enthusiasm at certain periods in the history of transfusion for this procedure, and at other times it has fallen into disrepute. Particularly since the last war transfusion has been used very widely throughout the world, and this might be said to be a period of enthusiasm for transfusion.

Previously the untoward effects from transfusions caused this procedure to fall into disrepute, but largely as a result of the application of newer knowledge and of newer technics these untoward reactions have been eliminated, so there have been relatively few times when transfusion has been felt to be contraindicated.

The indications for transfusions in diseases of the blood are not many. Perhaps the best way to discuss this is to take up the various disorders of the blood more or less in order. We might consider first anemia due to hemorrhage. If the anemia is recent and very severe, it may be necessary for transfusion to be given immediately in order to sustain life. In that event a transfusion may be necessary at a much higher level of the red blood cells and of hemoglobin than when anemia develops slowly because the individual accommodates himself to a low hemoglobin and a low red cell count when the process is gradual, whereas he goes into shock if he loses a large amount of blood suddenly. After acute, severe hemorrhage, even though the red blood cell count may be normal or only moderately reduced, it is often necessary to give a transfusion immediately.

There is one possible exception and that is the giving of blood to a patient who has suffered from a recent hemorrhage from a peptic ulcer. Under those circumstances it is generally believed that transfusion is actually dangerous and wasteful. The usual procedure is to avoid giving a transfusion to a patient who is bleeding actively from a peptic ulcer and to wait until bleeding has stopped for a period of time. However, under those circumstances one must be extremely cautious and not allow the patient to drift into severe shock. Good results are not to be expected from a transfusion during the course of severe bleeding from a peptic ulcer, but it may be practically the only thing that one can do in an attempt to combat shock in exsanguination.

Transfusions are used very widely in surgical practice, and often I think without good reason. As a rule transfusion in surgical cases is indicated for anemia of the grade which produces symptoms or as a preoperative procedure in anticipation of possible shock or loss of excessive amounts of blood. I think that transfusions given as a general tonic to surgical patients are usually unjustified and many more of them are given in most hospitals than are really indicated.

Infections, particularly those which are apt to produce anemia rapidly, frequently are benefited by transfusion. Especially is that true with the hemolytic streptococcus infections such as scarlet fever of a virulent type. In those instances I think transfusions are very useful, but as a rule in infectious diseases transfusions accomplish little, and the detailed studies that have been made by a large number of workers indicate that no better results are obtained by transfusions in ordinary infectious diseases than when transfusions are omitted. I think this is perhaps somewhat contrary to the point of view of the pediatricians, and I should be glad to hear from Dr. Smith on that.

As a rule in an anemia which is not developing rapidly one does not need to give a patient a transfusion before his red blood cells reach a level of 2,000,000 or thereabouts and before his hemoglobin reaches a level of about 5 or 6 Gm. At that time patients who are up and about begin to have symptoms of anemia. Those symptoms are palpitation and generalized discomfort, and there are signs of anoxemia. Under these circumstances I think that transfusion should be given to hasten recovery or prevent serious symptoms from developing. If a patient has a hemoglobin value below 4 Gm. or if his red blood cells drop below 1,500,000, one can anticipate that that individual is near the breaking point. If the hemoglobin or red blood cells go slightly lower, there may be sudden decompensation of the heart or other severe symptoms which then cannot be remedied easily; so one must watch such patients carefully and not hesitate too long about giving transfusions. On the other hand I think that anemia alone, let us say around 3,000,000 red cells or around 8 Gm. of hemoglobin, is not per se an indication for the transfusion of blood.

In pernicious anemia prior to 1926 transfusion was about the only method that we had of restoring the blood during periods of relapse, but more recently, since the advent of treatment with liver or liver extract, it has rarely been necessary to employ transfusion in a case of pernicious anemia and it is the opinion of most workers that patients are better off if they do not receive transfusions but are allowed to regenerate their own hemoglobin and their own red cells as a result of adequate treatment. However, if a patient with pernicious anemia first presents himself with an acute relapse, if he has a dilated heart or if he has symptoms of anoxemia, one must not hesitate to administer transfusions to tide over the period before liver extract makes itself felt.

The anemias of pregnancy rarely require transfusion and usually respond fairly well to therapeutic agents, depending on whether the anemia is of the microcytic type or the macrocytic type; that is, the macrocytic types respond to doses of liver extract or to the administration of adequate amounts of the vitamin B complex, and the microcytic types of anemia respond to treatment with iron.

Banti's disease and cirrhosis of the liver sometimes are associated with very severe anemia, and in those

diseases I think it is well to give at least a few transfusions because frequently the livers of such patients tend to regenerate, and sometimes they have a year or two or even more of active life thereafter, if one can protect them during the period of severe anemia.

Aplastic anemia and that whole group of poorly understood refractory anemias, at least refractory for a time, are best treated by means of transfusions, with the hope that one can tide these patients over the period in which the deleterious effects of whatever toxin has exerted its effects on the bone marrow may be spontaneously overcome. That is particularly true in the so-called secondary aplastic anemias, those due to benzene poisoning or to poisoning with other drugs and perhaps to effects of too severe irradiation with x-rays or with radium. Frequently it happens, however, that in true aplastic anemia transfusions are only palliative and eventually the patient succumbs to the disease. It is well worth keeping him alive for a period of several weeks or several months by repeated transfusions in the hope that he will recover spontaneously.

In the disease known as erythroblastic anemia or Cooley's anemia, transfusions are sometimes indicated when the anemia is severe. They may prolong the life of the patient for a period of time, but too much must not be expected from transfusions in that disease.

Erythroblastosis of the newborn requires immediate transfusion, and this is often a lifesaving procedure; hemorrhagic disease of the newborn also comes in that category.

Hemophilia and a number of other related diseases, so-called pseudohemophilia, constitutional thrombopathy and hereditary thrombasthenia are all benefited markedly by transfusions, and often the bleeding can be controlled by frequent small transfusions. In these disorders transfusions often are necessary before and after surgical operations, tooth extractions and the like. By giving a transfusion before the procedure and about every second day thereafter, one can usually control the hemorrhage so that operations are done with less danger.

The purpuric diseases, particularly idiopathic purpura haemorrhagica, are best treated by transfusion in an attempt to tide the patient over his attack and get him to a place where other procedures, notably splenectomy, can be carried out. It often happens in purpura haemorrhagica that the number of platelets is increased after transfusion, and sometimes they are increased beyond the expected amount of increase from the transfused blood; in other words, there seems to be some reaction in the recipient which favors the development of new thrombocytes.

The hemorrhagic manifestations of obstructive jaundice were formerly treated fairly effectively preoperatively by transfusions, but in more recent times vitamin K together with bile salts have largely been substituted for transfusions in this disorder, although if the hemorrhage is marked transfusions still have their place.

Leukemia is a disease in which transfusion often is practiced, although it is debatable whether or not one should use this method of treatment. Transfusions undoubtedly may prolong for a few days or weeks the life of patients who have acute leukemia. Usually the effect is fleeting. I think that a good rule to follow in that instance is that if one is not absolutely sure of the diagnosis of acute leukemia—and that frequently is true—one should resort to transfusions in the hope that one is dealing with a leukemoid or leukemia-like condition which may be susceptible of cure; but after one

is convinced that real leukemia is present then I think it is futile and unnecessary to continue transfusions of blood.

In the chronic leukemias, transfusions rarely are indicated. When a chronic leukemic patient gets a low red cell and hemoglobin level, particularly in chronic lymphogenous leukemia, he may be given transfusions and perhaps made better for a time, but a permanent effect cannot be expected. There are, of course, exceptions to this rule, and one should say in general that each patient should be considered individually. No hard and fast general rules can be made about transfusions in any of these disorders.

Granulocytopenia is a disease in which transfusion is frequently advocated and frequently given, but I think there is no support in the literature or in my own experience for the belief that transfusions are of value in the disease called agranulocytic angina. Our own studies on a group of ten patients with severe leukopenia, several of whom had acute agranulocytosis, showed that the white blood cells, counted every fifteen minutes immediately before, during and for several hours after the transfusion of 500 cc. of blood, within an hour or so often were lower than was the case before the transfusions were started, and that there was no permanent benefit or lasting increase of white blood cells in the recipient. Apparently the transfused leukocytes are all taken out of the circulation very quickly.

Sometimes one considers transfusion of blood in patients with lymphoblastoma—and I use that term rather generally to include lymphosarcoma and reticulum cell sarcoma and perhaps Hodgkin's disease. I think that when a patient's blood reaches a level requiring transfusions in those diseases one can expect little from transfusion. Sometimes transfusions will hasten a temporary recovery when they are given in conjunction with other effective treatment.

Methemoglobinemia may be an indication for transfusion when it is marked and when the patient suffers as a result of anoxemia.

Carbon monoxide poisoning may be another indication for transfusion in order to supply more red blood cells which can function in their capacity as carriers of oxygen and carbon dioxide.

I should like to say that there are two contraindications for the use of transfusion in the treatment of diseases of the blood: One is pulmonary edema; another is cardiac decompensation or known severe myocardial damage. Under those circumstances if one is forced to treat with transfusion it must be given slowly, but it is better to avoid it under those circumstances because the circulation may be overburdened. On the other hand, it frequently happens that if an anemic patient has myocardial failure as a result of anoxemia a transfusion will actually reduce the myocardial failure by lessening the burden on the heart.

I think a general rule in all diseases that require transfusion is to say Don't give a transfusion unless you have to; if you have to, it may be a lifesaving procedure.

PHYSIOLOGIC ASPECTS OF TRANSFUSION

DR. DU BOIS: Dr. Stillman will discuss the physiologic aspects and technic.

DR. RALPH G. STILLMAN: The purpose of transfusion is to introduce into the patient's circulation not necessarily fresh but sterile normal blood, usually of a high hemoglobin content, free from disease, especially

syphilis and malaria, and of the proper blood group compatible with the blood of the patient.

The practice of transfusion has been extended somewhat by the use of plasma instead of whole blood, and at times also by the use of donors that have been immunized against certain infections, but in general we want to give a product that is as near normal blood as possible and not have the administration followed by reaction. The procedure is frequently complicated by the fact that the blood may be needed in a great hurry.

The tests that are done as a routine to determine whether blood is suitable are those which tell us the blood groups of the donor and of the recipient and the compatibility of the two bloods, one of the serologic tests for syphilis and hemoglobin estimation. The board of health now requires a white cell count in donors of blood for the blood bank, and a physical examination of the donor is an important feature. In my opinion the examination of a stained blood film would be of greater value than the white cell count.

The sources of supply are professional donors, volunteer donors, placental blood and cadaver blood. Professional donors may be listed independently by hospitals which have the necessary facilities to maintain such lists or may be obtained from donor bureaus, where some of the necessary examinations are made and recorded and where the hemoglobin estimation and certain tests for the presence of syphilis are done at regular intervals. Volunteer donors are usually friends or relatives of the patient or sometimes merely altruistic persons who wish to give blood to sick people. The great value of the volunteer donor, of course, is the lack of expense for the patient or the institution. The disadvantage introduced by the use of volunteer donors is that not infrequently five, ten or fifteen donors must be examined before one that is compatible is found. When there is urgent need for the transfusion this often occupies valuable time, and it is always expensive.

In Russia cadaver blood is relied on for at least a part of the supply. Its use is said to depend on the miraculous reliquefaction of this blood after coagulation. So far as I know it has not been used in this country.

Placental blood is a generally available supply of rather small amounts of blood. For transfusions of the usual size for adults, several of these lots are combined. This source has not been utilized at the New York Hospital.

The transfusion may utilize either fresh blood or stored blood. The fresh blood has been most commonly used, whereas stored blood, while it was introduced during the last war in the British army and used to a certain extent, has recently increased in popularity with the introduction of the so-called blood banks.

Fresh blood transfusions may be done either by direct or by indirect methods, while the stored blood transfusions are necessarily all of the indirect type, in which the blood is treated with some substance to prevent its coagulation and there is a longer or shorter interval between withdrawal of the blood and its administration.

In the management of blood banks certain regulations have been generally adopted, some of which are more or less arbitrarily imposed. The blood taken from donors is treated with an anticoagulant or so-called preservative, which may differ in different places. Sodium citrate is the salt that is most frequently used. Many years ago Rous showed that the preservative effect of sodium citrate was greatly increased by the

addition of some sugar, and during the war the British used sodium citrate and dextrose. A rather elaborate mixture is used in Russia and has been adopted to some extent in this country with placental blood, to which are added not only sodium chloride and sodium citrate but traces of magnesium sulfate and potassium chloride and sometimes dextrose. The effect of the addition of dextrose to these solutions is generally recognized as aiding in the longer preservation of the red cells. The usual attitude has been that it is proper and possible to administer this blood to patients so long as the red cells remain reasonably intact, or perhaps I should say a reasonable proportion of them remain intact.

The feeling is rather general that the administration of hemolyzed cells is undesirable. There is very little experimental basis for this opinion, yet it persists in connection with the use of stored blood. The department of health regulations require that the blood shall be stored at a temperature between 1 and 5 C., that it must be preserved for not more than eighteen days and that it must be discarded on evidence of hemolysis, without stating how much hemolysis should require its rejection. As a matter of fact hemolysis first appears within twenty-four hours from the time the blood is taken. Under the most favorable conditions this hemolysis progresses exceedingly slowly, and for periods of three and even six weeks there may be only slight discoloration of the supernatant plasma; nevertheless hemolysis does begin immediately and progresses during the period of storage of blood.

A definite change which takes place in blood during storage is a loss of potassium from the cells to the plasma. It has been objected that the administration of potassium in this abnormal location may have an unfavorable effect on the patient. There seems to be very little actual basis for that fear, for bloods two months old have been given to patients without unfavorable effects.

The change which takes place in the prothrombin is not entirely agreed on. Some figures which have been published seem to show that the prothrombin diminishes rapidly and that but little is present in stored blood after the end of the first week; on the other hand, some observations have been made which seem to negate these data. Complement deteriorates rapidly and almost entirely disappears in most cases after one week's storage.

Aside from these changes, little is known about what goes on in stored blood. Blood has been administered without any apparent undesirable effect after periods up to two months. A demonstration of this point was made some two years ago when blood was taken from a donor in Buenos Aires and shipped to New York and then to Paris by steamer and there given to a patient in Paris, with what was claimed to be a desirable effect. However, it is generally felt, I think, that whole blood should be stored for not more than three or four weeks and that the absence of recognized ill effect does not mean that none has occurred. It is doubtful whether the presence of hemolysis has any really undesirable effect. In some places plasma is separated from the cells and given to patients, and it is said that the results are beneficial and free from obvious ill effects regardless of the degree of hemolysis shown by plasma.

We especially desire to avoid reactions. These reactions are of three general types: There are allergic

reactions, which are practically unavoidable and are of no moment. The patient may be uncomfortable because of the presence of urticaria, but that is usually controlled with a little epinephrine. Jaundice without a chill is apparently evidence of destruction of some of the more fragile of the red cells and is probably of very little importance, not deserving to be called a reaction. Jaundice with a chill may indicate an exceedingly dangerous and severe type of hemolytic reaction, such as one gets with a transfusion of incompatible blood, and may end fatally. The usual type of reaction which occurs with chill and a rise in temperature may be due to a number of causes, which are usually not recognized.

I can say that the direct method of transfusion is, in our experience at least, followed by a much smaller percentage of reactions than the indirect method. The direct method, however, is often awkward and when many persons are involved is not practicable.

Causes of reactions that can be recognized, besides those due to incompatibilities, are bacterial contamination, which should never happen with a properly operated bank, the use of water that is not freshly distilled in making up solutions, and the use of apparatus, especially rubber tubing, that has not been properly cleaned. As I have said, it is reasonably certain that the presence of hemolysis does not contribute to these reactions, although it is generally avoided.

DR. DU BOIS: The subject is now open for discussion or questions. Dr. Smith, will you tell us something about the work you are doing in the children's clinic?

TRANSFUSIONS DURING INFANCY AND CHILDHOOD

DR. CARL H. SMITH: I suppose there is no age period in which transfusions of blood have been used with greater frequency in recent years than during infancy and childhood. They have become a useful and in some cases an indispensable addition to treatment in pediatric practice. With the more widespread use of the intravenous rather than the intramuscular injection of blood in very young infants, however, certain precautions must be taken relative to blood matching. It is essential that preliminary blood grouping and compatibility tests be carried out in every case, no matter how young the infant, and even when the mother is the donor. It is hazardous to rely on the low titer of iso-agglutinins in the infant's blood as compared with the adult donor for the safety of a transfusion. In the newborn particularly it is important to repeat these tests before subsequent transfusions because the blood group of a baby may not be fully established at birth. In studying the development of blood groups it was noted that the infant's iso-agglutinins which were detected in the cord blood and in the peripheral blood for a variable period after birth were in large part derived from the mother through placental transfer. Reexamination within ten days revealed either a diminution in their titer or their complete disappearance. The blood group was later finally established with the elaboration by the infant of its own iso-agglutinins and receptors. The importance of those observations was illustrated by two infants whose cord blood revealed the presence of a and b iso-agglutinins and the complete absence of agglutinogens, so that the blood group could be classified as O. Within ten days the A and B agglutinogens made their respective appearance, and with the acquisition of the corresponding b and a iso-agglutinins the blood group in each case could be finally classified as A and as B. In other

words, the blood of these infants at birth fulfilled the requirements of group O by tests for receptors and for iso-agglutinins, to be replaced subsequently by their own blood groups A and B. The tardy development of iso-agglutinins and the observations that blood group elaboration appears to be accelerated after transfusions emphasize the importance of repeating blood group determinations when transfusions are to be repeated in the neonatal period.

Of the various methods that have been employed for the administration of blood, the most effective is the intravenous route. With the development of technical skill so that superficial veins, especially those of the scalp, became available, transfusions with citrated blood have been carried out for a large number of conditions in very young infants.

The conditions for which infants are given transfusions are often the same as those which occur in older patients, but there are certain states peculiar to this age period which have been greatly benefited by this form of therapy. Infants who suffer from severe malnutrition, whose weight is maintained with difficulty and whose blood volume and serum proteins are reduced show pronounced improvement with transfusions. Transfusions constitute a valuable aid in combination with parenteral fluid in the treatment of gastrointestinal intoxication. The injection of blood assists in overcoming circulatory collapse and shock and in correcting the water and electrolyte disturbances that follow vomiting, diarrhea and the attendant dehydration. Transfusion benefits the premature infant whose weight is stationary or who gains slowly and who is anemic. It has been advocated as a routine measure during the first forty-eight hours of life when the birth weight is below 1,500 Gm. Transfusions are probably of value in the treatment of cerebral hemorrhage by aiding clot formation, but here small, frequently repeated transfusions have been suggested instead of single large transfusions in order to avoid loosening of the clot at the site of the injured blood vessel. They are employed in "hemorrhagic disease of the newborn" with preference for the intravenous over the intramuscular injection. From an analysis of several series of cases, Clifford has pointed out that the value of blood transfusion in hemorrhagic disease may be attributed to combating the anemia due to the loss of blood rather than to the correction of the fundamental disorder.

In regard to the use of transfusion preoperatively, it may be said that there are circumstances peculiar to young persons where this is a justifiable procedure. I refer to infants, for instance, with hypertrophic pyloric stenosis who have been untreated or for whom medical treatment has been unsuccessful, or infants with prolonged ear infection in whom mastoiditis has developed. Such illnesses are usually associated with long drawn out periods of limited food and fluid intake. Transfusions relieve the anemia, the toxemia and the metabolic disturbances incident to malnutrition and dehydration already referred to. The probable role of transfusions in providing immune bodies may be particularly significant in young persons. Not alone may the infant be poorly supplied with immune bodies to pathogenic organisms only recently encountered, but its tissues may not yet possess sufficient maturity to elaborate them. It is conceivable that repeated transfusions may stimulate tissues to produce them in a manner similar to the accelerated development of blood groups by this procedure.

Dr. Forkner has referred to the use of transfusions in erythroblastic, or Cooley's, anemia. We have studied a number of infants and children with this blood dyscrasia, and certain features have become obvious with regard to the need for transfusions. Recent case reports have revealed that the disease is not uniformly severe and that mild and chronic cases are not uncommon, and that has been our experience also. In a case of moderate severity there are times when the blood cannot be maintained at levels compatible with well-being for any length of time without transfusions. The need for blood replacement, which in some cases necessitates weekly or biweekly transfusions, is frequently lessened by splenectomy. After this procedure and at times spontaneously the need for transfusions becomes much less frequent, and a state of chronic anemia develops in which ordinary activities are carried on without difficulty. Experience has shown that when this state is reached it is almost impossible to maintain normal blood levels for any considerable period even with repeated transfusions. When infection supervenes, however, a sudden drop in the hemoglobin and red cell count occurs and transfusions are again required.

DISCUSSION OF QUESTIONS

DR. PAUL REZNIKOFF: I should like to comment on some of the statements made by Dr. Forkner. One important point is that each case must be judged on its own merits. Another point is that it is quite possible to be misled into thinking that a transfusion has accomplished something. For example, when a patient with thrombopenic purpura is so treated, you might think that this measure caused the increase in the platelets; but they will often increase spontaneously if these patients are not given transfusions, especially when they have rather large hematomas in their tissues. Therefore it is difficult to prove that the transfusion was responsible for the increased number of platelets. The same thing is true of the statement that after a transfusion the bleeding or clotting functions have improved. It is very difficult to prove that by satisfactory evidence. I certainly think that this applies to the administration of transfusions in chronic osteomyelitis. A great many surgeons believe that transfusions improve the patient's resistance. But that is a vague term, and I doubt whether there is any good evidence to support it. I don't know how long these supposedly immune substances given by the donor last and how good they are.

There is another feature about transfusion which a physician must consider over and above the specific effect of the blood, and that is the effect of the transfusion on the emotions. There are some patients who consider a transfusion a very serious procedure. They know it is associated with serious diseases, and giving a transfusion without preparing such a patient properly will shock him. He feels he has a hopeless condition. On the other hand, you see the reverse type of case in which the family, the family physician or even the patient feels he has something wrong with his blood and that he should have a transfusion. If you do not give him this treatment he brings a lot of pressure to bear on you and may think he is not being treated properly. Those are factors which you have to evaluate in the individual case.

There is this to be said about giving a transfusion in a condition which is apparently hopeless, as in acute leukemia, aside from the waste of money: If you con-

sider such a condition hopeless—and most if not practically all of them are—is it fair to prolong a patient's agony? You would not give a transfusion as a rule to a patient with an inoperable carcinoma. Regardless of whether you think leukemia is of that nature or not, the end result is about the same. It seems to me that in such cases the general rule should be that the patient's symptoms should be treated; that is, if the patient is anoxemic the only thing that will help him is blood, and if he is not anoxemic I should think that in most cases transfusions are not indicated.

DR. DU BOIS: I am glad Dr. Reznikoff brought up that point. It is a very difficult matter, and the decision of whether or not to transfuse has been determined to a certain extent by the history of the procedure. In the early days the transfusionists had to sell the idea to the medical public. Now perhaps it has been oversold, so that physicians and the public expect too much of transfusions, and once they are started for a patient it is difficult to stop them. You may prolong life for a few days, but very often you prolong misery also. You waste a great deal of money for the patient and for the institution. So I suggest that you be very careful in starting a series of transfusions for a patient with a hopeless outlook. The same, perhaps, applies to a certain extent to oxygen tents. Are there other questions?

DR. HARRY GOLD: Could we have a restatement of the mode of action of transfusion in bringing about the beneficial effects when they occur? Is it merely a matter of supplying certain materials such as cells, hemoglobin and antibodies or is there also stimulation of certain structures or functions?

DR. FORKNER: I think both factors are concerned, but the latter to a much less extent. In other words, I think that transfusion in blood disorders usually is given to alleviate the symptoms of anemia, such as anoxemia. A greater oxygen and carbon dioxide carrying power is thus supplied to the blood, which lessens the work of the heart. After this the size of the heart may be reduced when it is dilated and there will be a less rapid respiration. I think the other factor of supplying stimulation to the blood-forming organs is a debatable one. At times patients do appear to be stimulated after a transfusion. Whether it is due directly to the transfused blood or to some secondary reaction we do not know.

DR. DU BOIS: I noticed that Dr. Smith used the word "probably" in regard to some of the beneficial effects of transfusion in infants. Is that a pretty big "probably"?

DR. SMITH: The answer to that question has to be subdivided. The beneficial effects of transfusion vary with the age of the child and with the condition for which this form of therapy is offered. The problem of judging the efficacy of transfusion at all age groups is one of measuring benefits objectively. In addition to quantitative estimation of the various blood elements following transfusion, the effect on mortality figures offers a most satisfactory gauge as to its value. This is illustrated in the syndrome of erythroblastosis foetalis, from which the mortality in untreated cases has been estimated as high as 80 per cent and which has been reduced to about 10 per cent with the use of transfusions. Yet it is difficult to determine just how transfusion has effected this remarkable improvement. The pathogenesis of this condition is obscure and a great

many theories have been offered as to its causation. It is regarded by one group as being due to a metabolic disturbance of hemopoiesis and by another as being essentially a hemolytic anemia. Transfusions elevate the hemoglobin and red blood cells and probably reinforce the supply of antihemolytic principles which usually are provided by the mother and which retard the physiologic hemolytic processes that take place in the first six weeks of life. While reference to antihemolytic factors is usually vague, there is concrete evidence of their existence in the detection by Josephs of a substance found in plasma which reduced the rate of blood destruction in sickle cell anemia and in congenital hemolytic jaundice. The effects of transfusion in erythroblastosis foetalis include the correction of the anemia, probably both by supplying the essential factors required for normal hemopoiesis and by stimulating their production. As with all anemias, transfusion also relieves the anoxemia by increasing the carriers of oxygen to the tissues. It is probably true, however, that this condition is self limited and that transfusions are supportive, in the sense that they tide the infant over the acute stages of this blood dyscrasia until normal blood formation is established. Transfusions must be carefully regulated, however, so as not to aggravate hemolysis.

When one comes to the older group, it is often difficult to justify transfusions and the qualification of "probably" looms big. It has already been stated that to the child, regardless of age, who has been ill for a long time with infection, transfusion is given as a supportive measure until immunity develops or until a particular operative procedure has been successfully accomplished. In the absence of anemia or of the effects of dehydration, it is difficult to determine when a child is in need of a transfusion.

Transfusions have enjoyed a definite vogue in the treatment of pneumonia. When it has occurred in young debilitated infants or when it has complicated contagious disease, transfusions are justified for the many reasons already mentioned. Until the recent introduction of chemotherapy, transfusions had been employed, however, as a routine procedure in the treatment of pneumococcic pneumonia. In this case the actual contribution of transfusions to recovery has always been problematic because children do so well without any specific therapeutic program. They were originally suggested as a form of therapy for pneumonia complicated by anemia. They have since been employed, however, in the absence of anemia and have been justified as a means of supplying antibodies, of increasing the amount of oxygen to the tissues by replacing the erythrocytes sequestered in the diseased lung, and of precipitating a critical drop in temperature. While spectacular improvement in the clinical course of this disease has been observed after transfusions, it is doubtful whether statistical analysis of large series of cases without this form of therapy would not reveal an equal number of similar changes.

DR. SALMON HALPERN: I should like to mention a few practical points that have arisen in the pediatric service. Since we have utilized the blood bank, using blood which is sometimes eight, ten or twelve days old, we have seen an increasingly large number of reactions. We have been trying to trace the cause of these reactions. Until recently we kept our blood bank at 18 C. The blood is now kept at 5 C. and just before

use is put in a pan of warm water at about 38 C. Heat is applied only to the actual quantity of blood to be injected. We think, and it has apparently been the experience in Bellevue Hospital where a bank has been long in existence, that repeated warming is probably one of the causes of reactions, especially when the blood is older. I wonder if Dr. Stillman would tell us whether he feels, as we do, that heat could cause the reaction.

DR. STILLMAN: I have no doubt that variations in the temperature might facilitate destruction of the red cells. I think it is a perfectly good procedure to remove only a portion of the cold blood and thus to avoid warming and then cooling blood to be used later. However, we have no idea of the cause of most of the reactions.

DR. DU BOIS: The blood bank is under fire quite often. I think reactions have occurred more frequently throughout the hospital since the introduction of the blood bank.

DR. STILLMAN: There was a period when the reactions were much more frequent, and now they are again becoming much less frequent without any reason that we can determine.

DR. MCKEEN CATTELL: In view of Dr. Stillman's impression that a small amount of hemolysis does not of itself constitute a contraindication to the use of stored blood, it is of interest to note that Amberson has shown experimentally that dogs survived for a number of days after bleeding and replacement with laked blood. He was thus able to demonstrate the lack of toxicity of free hemoglobin and the fact that, in this state, it continued to function in the transport of oxygen and carbon dioxide.

DR. H. B. RICHARDSON: There is one point that has not been sufficiently stressed. I recall rather definitely a story given as an explanation for reactions; somebody noticed that when an old worn piece of rubber tubing used for injections was replaced with a new one there was a series of reactions.

DR. STILLMAN: The preparation of the apparatus, of course, includes rubber tubing, which is very important.

DR. JOHN F. DEITRICK: I should like to ask if the condition of the donor makes any difference in reactions. It has been said that if a donor is alcoholic or has recently had a large meal the incidence of reactions goes up.

DR. STILLMAN: So far as the question of donor's food is concerned, I do not think it is of any importance in most cases. I think, however, that in the allergic patient one may encounter reactions. We have never regarded hives and asthma and that sort of thing as significant; they are of minor importance as a rule and can be avoided by having the donors fasting when the blood is taken.

DR. DEITRICK: Another point about the temperature of the transfusion: I happened to be at the Lederle Laboratories when they were giving a large transfusion from one animal to another and using 2, 3 or 4 liters of blood. I asked them why they did not warm the blood. Their reply was that they then got more reactions. They said that in the first instance one of their men made a mistake and gave the blood cold from the ice box, and, while they used to get severe reactions from warm blood, since they have been transfusing it cold they have had practically none. They had no explanation for it. It aroused my curiosity.

DR. WILLIAM DEWITT ANDRUS: I think Dr. Stillman will agree with me when I say that you can do many things in transfusions with the animal that you not only would hesitate to do but could not do with the human being.

DR. STILLMAN: I know there are many instances of transfusions and infusions being given at various temperatures below the body temperature. Here, again, I am relying on experience. The only chill that I know to have occurred from the infusion of physiologic solution of sodium chloride in the old New York Hospital occurred in a patient who was a member of the staff at that time; in this instance the saline solution was not warmed at all but given at room temperature. It may have been a coincidence, but chills are rare with that fluid.

DR. DU BOIS: If a man is anywhere near the edge of a chill, it can be precipitated by a small amount of cold water taken into the stomach, so it certainly could be precipitated by the transfusion of cold water into the veins.

I should also like to point out that man is accustomed to receiving large quantities of cold blood from his cold hands and feet. We find in experiments with the calorimeter in a cold room that the surface of the toes, for example, is often colder than the air. The hands are often as cold as the air, so man is accustomed to getting cold blood, and the veins returning from the hands and feet are cold streaks along the arms and legs.

DR. FORKNER: I would like to make one more point, and that is that the recent studies done, particularly by Kolmer, suggest that blood bank blood is not satisfactory for use in certain types of blood diseases, particularly in the thrombopenic group, because according to these studies the platelets are destroyed within a very short time, from twenty-four to forty-eight hours, and within a period of five days they are practically nonexistent. Another thing is that white blood cells begin to be destroyed promptly and within the course of seven or eight days are much reduced in number.

DR. REZNIKOFF: Why does Dr. Stillman do a white cell count as a test for the suitability of a donor?

DR. STILLMAN: Because the board of health requires it. I think a blood smear would be of more value.

STUDENT: Could some one tell us about the relative value of blood bank blood and fresh blood in treating infections? Do the antibodies in the complement deteriorate rapidly? I have been given to understand that for infections about 100 cc. of fresh blood is as good as 500 cc. of stored blood.

DR. REZNIKOFF: We ought first to decide whether any amount of blood is good for infections.

DR. FORKNER: I think it is very much open to question whether blood is good for infections.

DR. STILLMAN: Antibodies in transfusions are of doubtful value, and if antibodies are present they probably would be maintained in stored blood. The complement of course will disappear after a few days.

DR. GOLD: Dr. Forkner stated the criteria for the use of blood transfusions in anemia to be a low red cell count and low hemoglobin, and I believe he also said that after acute hemorrhage even in the presence of a normal red count and normal hemoglobin one may have to give a transfusion, and it might be lifesaving. May we assume that blood transfusion in other blood

diseases is also indicated only when the red cell count and hemoglobin are at low levels?

DR. FORKNER: The reason for the statement that the red cell count may be normal is that the blood may not yet have had time to dilute itself to reestablish the normal blood volume; i. e., immediately after an acute hemorrhage the blood has not absorbed fluid from the tissues, so that even though the total hemoglobin and the total red count of the body are decreased it is not at once reflected in the blood composition. The spontaneous restoration of blood volume is much delayed in the presence of shock.

In hemophilia it is not so much a matter of the red cell count and of the hemoglobin as it is the supplying of some other factor, a factor which has recently been shown by Stetson, Taylor, Eagle and others to be present in normal blood plasma or blood serum, which is not present in the blood of a hemophiliac, and which reduces the coagulation time. Also in cases of purpura haemorrhagica when the patients are bleeding, even though they have not a critical level of red cells and white cells, one supplies platelets to stop the bleeding.

DR. ADE T. MILHORAT: On the face of it, the use of an anticoagulant like a citrate would seem to be inadvisable in giving a transfusion to patients with hemorrhage. I was wondering if Dr. Cattell would say a few words about that.

DR. CATTELL: I do not have special information on the problem, but I should think in the first place that the amount of citrate is probably not very much in excess of the amount required to prevent coagulation in the donor blood so that its effect in deionizing the calcium in the recipient's blood would not be large; secondly the injection of citrates into animals has the opposite effect, that is, the coagulation time is shortened, presumably owing to an action on the endothelial walls or platelets.

SUMMARY

DR. DU BOIS: Every one seems to be agreed that today we are riding the crest of a wave of enthusiasm for transfusion; that transfusions are used too freely and often in conditions in which they appear to do little or no good.

The purpose of additional blood in most cases in which transfusion is indicated is to alleviate anoxemia due to anemia. The oxygen and carbon dioxide combining power of the blood is augmented by this process; the burden placed on the heart by severe anemia is reduced. There are also other uses for transfusion. In the hemorrhagic states new blood may introduce those elements which aid in the coagulation of blood. There is considerable doubt whether transfused blood is of specific value in combating infections, but on the other hand a transfusion may tide an anemic patient over a crisis, after which he may be better able to combat the infection.

Transfusion is indicated when the red blood cell count falls to about 2 million cells per cubic millimeter and the hemoglobin to about 5 to 6 Gm. per hundred cubic centimeters. In sudden severe hemorrhage, however, transfusion is indicated immediately, although the red cell count and the hemoglobin may not have fallen appreciably because hemal dilution has not yet occurred.

Transfusion may be contraindicated in bleeding peptic ulcers and in the presence of pulmonary edema and of cardiac decompensation. If absolutely essential in these conditions, the blood should be administered slowly and in small amounts.

The indications for transfusions in infants are much the same as in adults. They are also useful in the treatment of premature infants, severe malnutrition and gastrointestinal intoxication. In infants it is important to type the blood and perform compatibility tests before each transfusion because frequently the blood group is not established at birth.

Hemolysis does not appear to decrease the value of stored blood seriously in most instances, but the thrombocytes deteriorate rapidly and fresh blood may be preferable to preserved blood in the treatment of some of the blood dyscrasias, especially the hemorrhagic states.

Reactions to transfusions may occur even when scrupulous attention is paid to typing, compatibility and the apparatus. Urticaria, jaundice or chills are not particularly serious, but jaundice with a chill may indicate a severe type of hemolytic reaction. These appear to occur less frequently with the direct method of transfusion.

THYROID MEDICATION DURING CHILDHOOD

LAWSON WILKINS, M.D.

BALTIMORE

Thyroid medication during childhood will be discussed under two headings: (1) substitution therapy in definite thyroid insufficiency and (2) the administration of thyroid in borderline conditions of questionable thyroid origin, in supposedly mixed endocrine disturbances and in conditions not hypothyroid in which the physiologic effects of the drug are sought. It is necessary first to mention briefly the diagnostic problems of hypothyroidism in childhood.

THE DIAGNOSIS OF HYPOTHYROIDISM IN CHILDHOOD

Cretinism.—The untreated cretin of more than 2 or 3 years of age usually presents a picture which is well known and easily recognized.¹ The patient is dull, listless and apathetic. The body is short and stocky. The cretinoid facies is characterized by coarse, heavy features; small, widely spaced piglike eyes with puffy lids; a broad, short nose with undeveloped bridge; a broad mouth with thick lips, and a broad protruding tongue. The skin is dry, thick, wrinkled and cool and shows circulatory mottling. The cheeks are pale and may have a carotenemic tinge. The lips are pale or slightly dusky. The hair is sparse, coarse and dry.

In the first year or two of life, the time when adequate treatment offers the most favorable prognosis, the cretin frequently does not have this characteristic and easily recognizable appearance. On superficial inspection he might be mistaken for a fairly normal infant considerably younger than his actual age. For example, a cretin of 18 months may look and act like an infant of 5 or 6 months. This is due to the fact that the thyroid deficiency causes a retardation of all the developmental processes—growth, osseous development, dentition and mental development. The x-ray study of the centers of ossification and a comparison with Shelton's² tables to determine the bone age is an essential diagnostic

1. Kennedy, R. L. J.: *The Thyroid Gland*, in Brennemann, Joseph: *Practice of Pediatrics*, Hagerstown, Md., W. F. Prior Company, Inc., 1937, vol. 1, c. 38.

2. Shelton, E. K.: *Roentgenographic Studies in Normal Osseous Development*, J. A. M. A. 96:759 (March 7) 1931.

procedure. In the untreated case, unless there is a definite retardation in the osseous development, growth, dentition and mental development, cretinism can be excluded. On the other hand, the diagnosis can be established with certainty only by finding, on careful examination, some of the changes of the skin and hair and the apathy which are common to hypothyroidism. The finding of a serum cholesterol above 300 mg. per hundred cubic centimeters is strongly suggestive of hypothyroidism, but in untreated cretinism the cholesterol may be within normal limits. The diagnosis should not be considered as established unless adequate dosage with thyroid causes striking clinical changes, a marked acceleration of growth and osseous development and a drop in the serum cholesterol.

Mistakes in diagnosis are made frequently. The condition is unsuspected sometimes until the child is 3 or 4 years old. Children with mongolian idiocy or other cerebral defects often are labeled cretins. Hypertelorism,³ a developmental defect of the sphenoid bone causing a wide spacing of the eyes, may produce a facies somewhat suggestive of the cretinoid. When a child has been treated previously with thyroid the diagnosis is made still more difficult, because all the characteristic signs may have disappeared. If the original diagnosis is open to serious question, thyroid should be discontinued and the patient should be observed carefully over a period of from four to ten weeks. If hypothyroidism exists, the patient will become more sluggish, the weight will increase rapidly, the color of the skin and lips will fade and finally the skin will become cool, dry and rough. Most characteristic of all after the withdrawal of thyroid, the serum cholesterol will rise to high levels—usually to between 300 and 400 mg. per hundred cubic centimeters and at times over 600 mg.

Juvenile Hypothyroidism.—Terms used synonymously by various writers are acquired hypothyroidism, juvenile myxedema and hypothyroid dwarfism. In this condition one cannot be certain whether a previously normal thyroid has become deficient or whether the gland, partially deficient from birth, has been able to fulfil the needs of the young infant but not the increased demands of the older child. In most instances the patient seems to have grown and developed during the first few years of life. Later there is a slowing or stopping of growth and development, so that the child lags further and further behind the normal for his age. The characteristic cretinoid facies does not develop, nor do the myxedematous deposits of the adult usually occur. The typical case of juvenile hypothyroidism may be described as follows: The child looks much younger than his actual years. He is stunted in height, with skeletal proportions corresponding to his height rather than to his age. The body build is stocky or chunky. The patient is overweight but not markedly obese. The features are somewhat broad and coarse and the expression is a little dull. There is always marked delay in the osseous development. The second dentition is delayed and the teeth are often poorly formed and carious. The mental development is usually somewhat retarded. The cheeks and lips are generally pale. The skin is cool, somewhat dry and roughened, and the hair is dry. However, changes of the skin and hair are usually much less marked than in cretinism.

There may be considerable deviation from the characteristic clinical picture, so that certain special examinations are of considerable diagnostic value. The determination of the basal metabolic rate is often unsatisfactory and unreliable. The x-ray study of the centers of ossification is of great importance. If hypothyroidism has existed for several years, the bone age is always definitely retarded. Unless this retardation is found, the diagnosis can be excluded. However, contrary to the opinion expressed by some writers, delayed osseous development of itself is not always pathognomonic of hypothyroidism but may be found in other types of dwarfism. Of still greater diagnostic importance is the additional finding in some cases of a porous, stippled or fragmented appearance of the osseous centers, described by a number of authors, and recently given the name of cretinoid epiphysial dysgenesis by Reilly and Smyth.⁴ This resembles bilateral Perthes' disease or Köhler's disease and is not usually encountered in types of dwarfism which are not of hypothyroid origin. It disappears rapidly under treatment. In juvenile hypothyroidism the serum cholesterol is usually from 300 to 500 mg. per hundred cubic centimeters. It is subject to wide spontaneous fluctuation so that at times it is within the limits of normal. The urinary excretion of creatine is greatly diminished or absent. As in all hypothyroid conditions, the most important criterion for diagnosis is a specific response to comparatively small doses of thyroid: a sharp drop

Therapeutic Equivalents of Brands of Thyroid

		Fresh Gland, Grains	Thy- roxine, Mg.
Thyroid U. S. P.....	1 grain	= 5.0	= 0.2
Parke, Davis & Co.....	1 grain	= 7.5	= 0.3
Burroughs, Wellcome & Co.....	1 grain	= 1.5	= 0.06

in the serum cholesterol, a rapid increase in the creatine excretion, an acceleration of the osseous development and rate of growth and a disappearance of the physical signs of hypothyroidism.

THE USE OF THYROID IN DEFINITE HYPO- THYROID CONDITIONS

Thyroid Preparations.—Desiccated thyroid by mouth is the therapeutic agent of preference. Pure thyroxine has no advantage over dried thyroid and, by mouth, is probably inferior. Other fancy and more expensive thyroid pharmaceuticals have nothing to recommend them. If the child is unable to swallow a thyroid tablet, it may be crushed and given in the food. A single daily dose is as efficacious as divided doses.

The U. S. Pharmacopeia XI requires that desiccated thyroid contain between 0.17 and 0.23 per cent of iodine in thyroid combinations. One part corresponds to approximately five parts of fresh gland. Unfortunately, not all commercial brands conform to this requirement, and this leads to confusion in dosage. According to Lerman and Salter⁵ and to Means,⁶ the therapeutic equivalents⁷ of various brands of thyroid are given in the accompanying table.

4. Reilly, W. A., and Smyth, F. S.: Cretinoid Epiphysial Dysgenesis, *J. Pediat.* **11**:786 (Dec.) 1937.

5. Lerman, Jacob, and Salter, W. T.: The Calorigenic Action of Thyroid and Some of Its Active Constituents, *Endocrinology* **18**:317 (May-June) 1934.

6. Means, J. H.: Therapeutics of the Thyroid, *J. A. M. A.* **105**:24 (July 6) 1935.

7. The therapeutic equivalents of thyroid and thyroxine, as indicated in the table, are not to be confused with the actual thyroxine content of thyroid, since the activity of thyroid is recognized to be due to more than thyroxine content alone.

3. Washington, J. A.: Hypertelorism, in Brennemann's *Practice of Pediatrics*, vol. 4, c. 31.

The physician would do well to stick to one commercial brand—preferably one fulfilling the U. S. P. requirements—and he should specify this brand on the prescription. The failure to realize the difference between the American and the British standardization has led frequently to serious underdosage.

Principles of Thyroid Treatment in Children.—Although in general the principles of substitution therapy are the same in childhood as in later life, there are some important differences to be borne in mind:

1. Means⁶ states that "in adult myxedema, the indication is to give a sufficient daily ration of thyroid to keep the patient free from symptoms. It is best to use the minimum dose that will accomplish this purpose. Nothing is gained by raising the basal metabolic rate to standard if the patient is free from symptoms (as is usually the case) at a decidedly lower level." This is not true in childhood. The rate of growth and development is largely governed by thyroid activity. If less

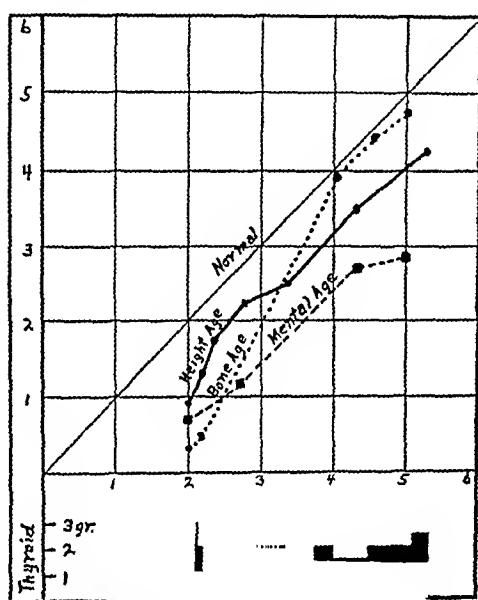


Chart 1.—Height age, bone age and mental age, compared with the normal, of cretin adequately treated.

thyroid is given than is required to maintain a normal level of metabolism, the developmental rate will be slower than normal. As the child grows older, he will fall further and further below the normal standards for his age. If just sufficient thyroid is supplied to meet the normal requirement, the previously stunted hypothyroid child will probably grow and develop at the normal rate but will not attain the normal levels for his age. In order to accelerate the developmental rate sufficiently to allow the retarded hypothyroid patient to make up for his lost years and to approach his normal age level, it is probably necessary to produce a slight degree of hyperthyroidism. Therefore in childhood it seems important to give at least sufficient thyroid to maintain a normal metabolic rate and, accordingly, a normal rate of development. I believe that perhaps even better results can be obtained by producing a very slight degree of hyperthyroidism. With reasonable care to avoid toxic symptoms, this can be done without danger to the patient. Demineralization of the bones has not been observed. Whether such acceleration of the development causes the child to reach the optimal physical and mental attainments

remains to be proved. At the present time the results seem to be more favorable than with the small doses previously advocated.

2. The dose of thyroid tolerated without toxic effects is not proportional to the size, weight or age of the child. The young cretin usually can tolerate from 1 to 3 grains (64 to 192 mg.) of thyroid—as much as a 12 years old child with juvenile hypothyroidism or an adult with myxedema. The small doses^{7a} that are usually recommended for cretinism are based on the requirements necessary to cause disappearance of the cretinoid facies, the changes of the skin and hair and the other obvious signs of cretinism. Such doses do not usually cause the child to grow and develop at a normal or slightly accelerated rate, and they lead to the loss of much valuable time in the early years of life.

3. It is necessary to determine the tolerance of each patient. Like the myxedematous adult, the hypothyroid child is much more sensitive to thyroid than the normal individual. At the beginning of treatment, toxic symptoms may be produced by from one half to 1 grain (32 to 64 mg.), whereas after some months of therapy the dose may be increased gradually to as much as 2 to 3 grains (128 to 192 mg.) without ill effect. As the tolerance increases it is important to raise the dose in order to maintain an adequate rate of development. It is rarely, if ever, necessary to exceed 3 grains (192 mg.) daily.

Regulation of Dosage.—Since the therapeutic objective is to bring the hypothyroid child as close as possible to the normal level of physical and mental development it is desirable to give sufficient thyroid to maintain the metabolism at the normal level or slightly above it. However, the determination of the basal metabolic rate often is unreliable in childhood and does not give the desired information concerning the physiologic effects. Therefore the dose must be determined and the results followed in two ways: 1. The tolerance must be found by trial for each patient; that is, the daily dose which produces slight but unpleasant toxic effects. The therapeutic dose should be maintained slightly below this level. 2. After the patient has been put on the maximum tolerated dose of thyroid, the rates of growth and development should be constantly followed as a guide to the efficacy of therapy. These methods of regulation will now be discussed in detail.

1. Determination of Tolerance: While the tolerance is being determined, the patient should be under close observation, preferably in a hospital. Even the young infant may be started safely with one half grain (32 mg.) of thyroid daily, and the dose may be increased by increments of one half grain. Since Means and Lerman⁸ have shown that, when a constant daily dose of thyroid is given, maximum effects are not exerted for approximately three weeks, it is safest to increase the dose not oftener than every three or four weeks. With the beginning of effective treatment, considerable

7a. The daily doses of thyroid recommended by most authors for the treatment of cretins are:

Age	Daily Dose
2-4 months	$\frac{1}{4}$ grain
4-8 months	$\frac{3}{10}$ grain
8-12 months	$\frac{2}{10}$ - $\frac{7}{10}$ grain
12-24 months	$\frac{3}{10}$ - $\frac{1}{2}$ grain
2-4 years	$\frac{1}{2}$ -1 grain
4-12 years	1-3 grains

8. Means, J. H., and Lerman, Jacob: Symptomatology of Myxedema: Its Relation to Metabolic Levels, Time Intervals and Rations of Thyroid, Arch. Int. Med. 55:1 (Jan.) 1935.

loss of weight and sweating may occur. Cretins who have previously been phlegmatic and amenable may become very hyperactive, irritable, distractible and hard to manage, as are other mentally defective children. These symptoms usually may be disregarded. They probably indicate a slight degree of hyperthyroidism, which is desirable. The toxic symptoms that indicate overdosage are diarrhea or cramps, vomiting, excessive irritability or twitchings, continued loss of weight, a very rapid pulse rate and fever. If such symptoms occur, thyroid should be omitted for a few days or a week and then resumed at a level one half grain below that previously given. Cretins and patients with juvenile hypothyroidism usually can be maintained just below the level of toxic effects on daily doses of from $1\frac{1}{2}$ to 3 grains (96 to 192 mg.) of thyroid, although occasionally a patient is more sensitive than this at the beginning of treatment.

2. The Rate of Development as a Guide to the Adequacy of Treatment: Even with the very small doses of thyroid that have been used so often in the past, all obvious signs of hypothyroidism may disappear within a few weeks or months. The patient becomes more alert and energetic, the excess weight is lost, the skin becomes soft, warm and moist, the cretinoid facies disappears and a certain amount of growth may occur. One may be deceived into believing that satisfactory or optimal results are being obtained unless a careful record of the growth and development is kept. The

rate of development, especially the osseous development, probably gives the most reliable information concerning the average level of cellular metabolism over long periods of time. If after two to six months there is no acceleration of the bone development shown by x-ray examination, the dose of thyroid is probably inadequate. I⁹ have described a simple method of comparing the growth, osseous development and mental development with the normal rates. My studies have shown that with small doses of thyroid, or with interrupted treatment, the "bone

horizontal and the patient's developmental age along the vertical coordinates. Chart 1 shows the acceleration of development which adequate thyroid therapy brought about in a young cretin. The bone age rapidly approached the normal. Chart 2 shows a similar result in an older child with juvenile hypo-

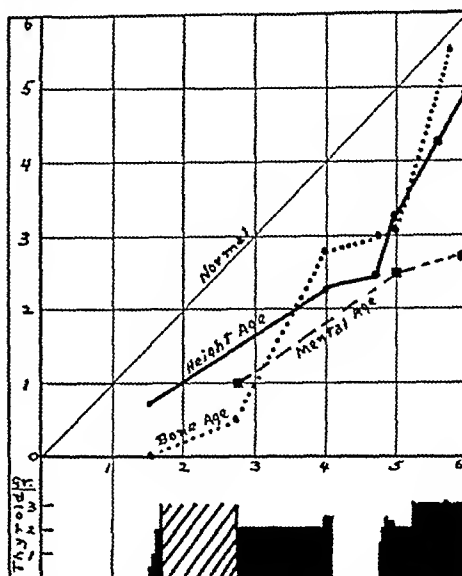


Chart 3.—Height age, bone age and mental age, compared with the normal, of a cretin: results of interrupted treatment.

thyroidism. Chart 3 shows the effect of interrupted treatment in a case of cretinism. During the first year of treatment there was a subnormal rate of growth and osseous development resulting from the mother's failure to give thyroid continuously. Following this a period of regular therapy caused a marked acceleration of the osseous development. Between the ages of 4 and 5 years the omission of treatment again caused a retardation of growth and bone development. Chart 4 shows the results of inadequate dosage in a cretin. Between the ages of 6 years and 10½ years this patient received regular daily doses of one half to 1 grain (32 to 64 mg.) of thyroid. Although all clinical signs of hypothyroidism disappeared, the growth and osseous development continued to lag far below the normal. When the dose of thyroid was increased to 3 grains (192 mg.) at the age of 11½ years, a rapid acceleration of the developmental rates resulted. In this case developmental curves gave the only indication of the inadequacy of treatment.

In order to follow the rate of development, the patient should be kept under frequent observation. Roentgenograms should be taken to study the centers of ossification, first at intervals of three or four months, later every six months or year. The height should be recorded regularly and mental standardizations made from time to time. These may be plotted in comparison with the normal by the method described. Unless there is a continuous rapid development of the osseous system, one should attempt to increase the dose of thyroid to a higher level, as the patient's tolerance may have increased. If the bone age exceeds the normal or advances too far beyond the height age, the dose should be decreased, because when the bone age reaches that of 13 or 14 years epiphyseal union begins to occur and growth is brought to an end.

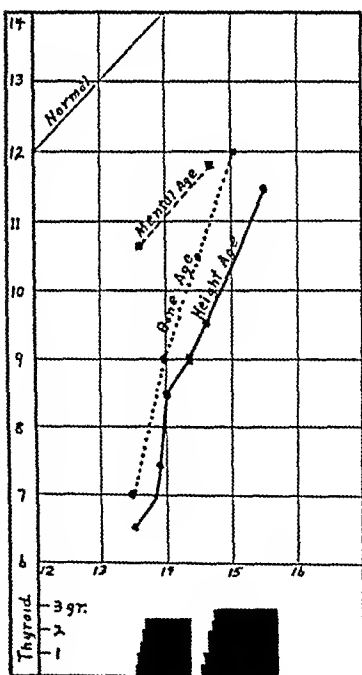


Chart 2.—Height age, bone age and mental age, compared with the normal, of hypothyroid dwarf adequately treated.

age" and "height age" lag further and further below the normal levels, whereas when the dose is increased to the point of tolerance they tend to approach the normal.

This is illustrated by charts 1, 2, 3 and 4, in which the chronological age is plotted along the

9. Wilkins, Lawson: The Rates of Growth, Osseous Development and Mental Development in Cretins as a Guide to Thyroid Treatment, *J. Pediat.* 12: 429 (April) 1938.

PROGNOSIS

In cases of cretinism, the prognosis for attaining approximately normal growth and physical development is good, provided treatment is adequate and not too long delayed. Unfortunately the prognosis is much poorer for normal mental attainment. Many cretins remain somewhat subnormal, and not a few remain markedly defective in mentality. This is often attributable to delay in the beginning of treatment, to inadequate dosage or to frequent interruptions in the continuity of treatment. As a rule, the earlier intensive treatment is begun, the better is the prognosis. However, it is probable that in some instances the thyroid insufficiency has caused an irreparable damage to the nervous system in the earliest months of infancy. Sometimes older cretinous imbeciles are encountered who are made only more irritable, peevish and unmanageable by intensive thyroid treatment. If a conscientious and adequate therapeutic trial has proved that one can expect no further mental development, it is probably best to be content to administer the

minimal dose required to prevent outspoken hypothyroid symptoms.

In juvenile hypothyroid dwarfism, adequate treatment usually brings about a spectacular and gratifying acceleration of growth. This continues until the osseous development reaches the stage of epiphyseal union, usually simultaneously with sexual maturation. The ultimate height that the patient attains depends on the amount of stunting before treatment, the age at which thyroid treatment is begun and interrelationships with other endocrine glands, which are still little understood. The degree of mental retardation before treatment is often not marked and probably depends on the age of onset of hypothyroidism and the degree of insufficiency. The prognosis for normal mental attainment is much better than in cretinism.

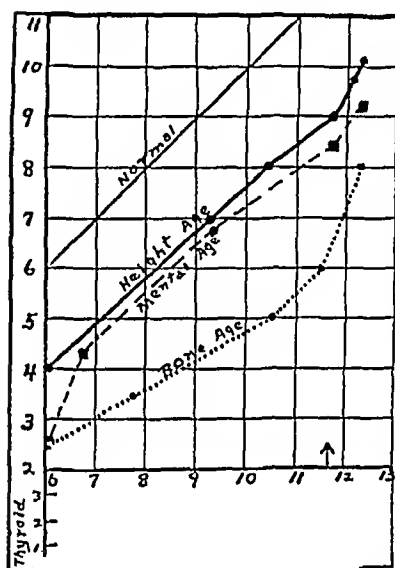


Chart 4.—Height age, bone age and mental age, compared with the normal, of a cretin inadequately treated.

relationships with other endocrine glands, which are still little understood. The degree of mental retardation before treatment is often not marked and probably depends on the age of onset of hypothyroidism and the degree of insufficiency. The prognosis for normal mental attainment is much better than in cretinism.

THE USE OF THYROID IN CONDITIONS OF QUESTIONABLE OR BORDERLINE THYROID INSUFFICIENCY AND IN CONDITIONS WHICH ARE NOT OF HYPOTHYROID ORIGIN

In recent years it has become popular to ascribe various abnormalities in childhood to hypothyroidism. Frequently the mentally subnormal or the physically stunted child is glibly diagnosed as hypothyroid, provided the x-ray examination reveals some delay in osseous development, even though there are no other physical signs of biochemical changes of thyroid insufficiency. It is unwarranted to assume that the

finding of osseous retardation alone proves a thyroid deficiency, although it is probable that slowing of growth and osseous development may be the earliest evidence of hypothyroidism to become manifest. Whether slight subclinical degrees of hypothyroidism may exist without ever progressing to more outspoken forms is a most important question about which there is considerable difference of opinion. In fact, Means and Lerman⁸ go so far as to state that an adult either does or does not have hypothyroidism. "Borderline or half-way types of hypothyroidism exist either not at all or rarely. Hypometabolism is no more synonymous with hypothyroidism than fever is synonymous with measles." Unfortunately, at the present time no exact criteria have been established for the diagnosis of slight degrees of thyroid insufficiency and many such diagnoses are purely guesswork. I do not wish to condemn the empirical therapeutic trial of thyroid in children who are subnormal mentally or physically and are retarded in their osseous development. In fact, these patients should be given every benefit of the doubt. Thyroid can do no harm, if used properly, and may do some good. Such patients are probably less sensitive to thyroid than the typical hypothyroid patient, and larger doses may be required to produce any physiologic effect. It is, however, timely to utter a protest against the indiscriminate and uncritical diagnosis of borderline hypothyroidism. The clinician should endeavor to evaluate critically any apparent benefits derived from thyroid medication and should remember that it may produce nonspecific effects in the absence of thyroid insufficiency. The results should be checked later by discontinuing the drug and noting the effects of withdrawal on the physical signs and especially on the serum cholesterol. The patient should not be condemned needlessly to lifelong treatment.

The diagnosis of the various types of dwarfism is still far from established, in spite of many didactic statements in the literature. Osseous retardation of high degree is found in many different types that present no suspicions of hypothyroidism.¹¹

It is stated that preparations of pituitary growth hormone are more efficacious when given in conjunction with thyroid.¹² Their simultaneous use is justified by animal experimentation.¹³ Such double medication, however, makes more difficult the diagnostic problem of dwarfism and the evaluation of the efficacy of pituitary preparations.

Dorff¹⁴ believes that in certain types of hypogonadism there is an associated hypothyroid factor, and he combines the use of thyroid with the gonadotropic hormone of pregnancy urine (A. P. L.). Jacobsen and Cramer¹⁵ have claimed that the combined use of thyroid and of anterior pituitary extract (A. P. E.) in cases of obesity of the Fröhlich type has caused a reduction in weight and a change in body build, although

11. Shepardson, H. C.: The Importance of Roentgenographic Studies of Osseous Development in Endocrine Disorders, *Radiology* **26**: 685 (June) 1936.

12. Englebach, William, and Schaefer, R. L.: Endocrine Dwarfism, *J. A. M. A.* **103**: 464 (Aug. 18) 1934.

13. Smith, P. E.: Increased Skeletal Effects in A. P. Growth Hormone, Injections by the Administration of Thyroid, in Hypophysectomized, Thyroparathyroidectomized Rats, *Proc. Soc. Exper. Biol. & Med.* **30**: 1252 (June) 1933.

14. Dorff, G. R.: Maldevelopment and Maldescent of the Testes: Report of Treatment with the Anterior Pituitary-like Gonadotropic Hormone from the Urine of Pregnant Women, *Am. J. Dis. Child.* **50**: 1429 (Dec.) 1935.

15. Jacobsen, A. W., and Cramer, A. J.: Clinical Results of Anterior Pituitary Therapy in Children, *J. A. M. A.* **109**: 101 (July 10) 1937.

10. Footnote deleted on proof.

neither hormone used alone was effective. Their results have not been duplicated by others. Although the interpretation of such results is questionable, there can be no objection to the trial of thyroid.

In contrast to its use as a biologic substitution therapy in hypothyroid conditions, thyroid is sometimes employed in a variety of nonthyroid conditions, such as obesity, ichthyosis and nephrosis. In such conditions it is employed for its calorogenic, diaphoretic or diuretic action, and perhaps larger doses are needed. "The effect of thyroid in hypothyroidism is definite, precise and predictable; in nonthyroid conditions its action is often indefinite and disappointing."⁶

1014 St. Paul Street.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

PAUL NICHOLAS LEECH, Secretary.

DESIGNATIONS "PYRIDOXINE" AND "PYRIDOXINE HYDROCHLORIDE" FOR VITAMIN B₆ AND VITAMIN B₆ HYDROCHLORIDE

Merck & Co., Inc., brought to the attention of the Council on Pharmacy and Chemistry the proposal of Paul György of the designation "pyridoxine" (pronounced pī-rī-dōx'ēn) as an appropriate term for vitamin B₆. The company further stated that since it was about to manufacture the hydrochloride of vitamin B₆ it was desirous of approaching the Council in the matter of nomenclature.

The Committee on Nomenclature entered into correspondence with Dr. György and with representatives of the committees on nomenclature of the American Chemical Society, the American Society of Biological Chemists, and the American Institute of Nutrition, as well as others. After considerable exchange of opinions the Committee on Nomenclature recommended, and the Council adopted the recommendation, that the name "pyridoxine" be adopted as the nonproprietary term for the product tentatively known as vitamin B₆, and "pyridoxine hydrochloride" for the product tentatively known as vitamin B₆ hydrochloride. No brand has been accepted as yet by the Council.

"SULFATHIAZOLE" AND "SULFAMETHYLTHIAZOLE" THE NONPROPRIETARY NAMES FOR 2-SULFANILAMIDOTHIAZOLE AND 2-SULFANILAMIDO-4-METHYLTHIAZOLE

Two substances having current interest and also some promise of merit are 2-sulfanilamidothiazole and 2-sulfanilamido-4-methylthiazole. These preparations have been called "sulfathiazole" and "sulfamethylthiazole." At the time of the publication of the preliminary report of Dr. Perrin H. Long on these substances issued under the auspices of the Council on Pharmacy and Chemistry (THE JOURNAL, March 9, p. 870) it was stated that the Council had not yet passed on the terminology.

The Committee on Nomenclature of the Council received the information that the terms "sulfathiazole" and "sulfamethylthiazole" were acceptable to Dr. Foshbinder, who is credited as the discoverer of the products, and would be considered nonproprietary designations. Inquiry was also made of Dr. E. J. Crane, chairman of the Committee on Nomenclature of the American Chemical Society, who also informed the Council that, in his opinion, there was no objection to offer to these nonproprietary names.

Accordingly, the Council adopted the recommendation of its Committee on Nomenclature that the terms "sulfathiazole" (sulf-

a-thiazole) and "sulfamethylthiazole" (sulf-a-methyl-thiazole) be accepted as nonproprietary designations for 2-sulfanilamidothiazole and 2-sulfanilamido-4-methylthiazole, respectively. The adoption of these terms does not indicate at this time the acceptance of the substances. It is to be emphasized that the preliminary observations on sulfamethylthiazole indicate that its use may not be without considerable danger of peripheral neuritis.

No brand of either drug has yet been accepted by the Council.

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

BENZEDRINE SULFATE (See New and Nonofficial Remedies, 1940, p. 233).

The following dosage form has been accepted:

Benzedrine Sulfate Ampoules, 10 mg., 1 cc.: Each cubic centimeter contains 10 mg. of benzedrine sulfate-N. N. R. in sterile water made isotonic with sodium chloride.

EPHEDRINE SULFATE-ABBOTT (See New and Nonofficial Remedies, 1940, p. 240).

The following dosage form has been accepted:

Ampoules Ephedrine Sulfate-Abbott, 0.025 Gm. ($\frac{1}{4}$ grain) 1 cc.: Each cubic centimeter contains ephedrine sulfate 0.025 Gm. ($\frac{1}{4}$ grain) in chemically pure water.

GOLD SODIUM THIOSULFATE-ABBOTT (See New and Nonofficial Remedies, 1940, p. 269).

The following dosage form has been accepted:

Ampoules Gold Sodium Thiosulfate-Abbott, 0.075 Gm.

EPHEDRINE (See New and Nonofficial Remedies, 1940, p. 235).

Ephedrine Alkaloid-Squibb.—A brand of ephedrine-U. S. P.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Ephedrine Compound Inhalant-Squibb: A solution of ephedrine alkaloid containing ephedrine alkaloid 1.0 Gm., camphor 0.6 Gm., menthol 0.6 Gm., and oil of thyme 0.3 cc. dissolved in light mineral oil base to make 100 Gm.

Ephedrine Inhalant Plain-Squibb: A 1% solution of ephedrine alkaloid in a lilac scented mineral oil base.

EPHEDRINE SULFATE (See New and Nonofficial Remedies, 1940, p. 240).

Ephedrine Sulfate-Squibb.—A brand of ephedrine sulfate-U. S. P.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

Capsules Ephedrine Sulfate-Squibb, $\frac{1}{4}$ grain.

Capsules Ephedrine Sulfate-Squibb, $\frac{1}{4}$ grain.

SULFANILAMIDE (See New and Nonofficial Remedies, 1940, p. 489).

The following dosage form has been accepted:

Compressed Tablets Sulfanilamide-Miller, 5 grains.

Prepared by the E. S. Miller Laboratories, Inc., Los Angeles. No U. S. patent or trademark.

CAFFEINE WITH SODIUM BENZOATE (See New and Nonofficial Remedies, 1940, p. 168).

The Upjohn Co., Kalamazoo, Mich.

Ampoules Sterile Solution Caffeine with Sodium Benzoate, 0.5 Gm. ($\frac{7\frac{1}{2}}$ grains) 2 cc.: Each 2 cc. contains caffeine with sodium benzoate-U. S. P. 0.5 Gm. ($\frac{7\frac{1}{2}}$ grains) in distilled water.

Hypodermic Tablets Caffeine with Sodium Benzoate, 0.065 Gm. ($\frac{1}{4}$ grain).

The Lakeside Laboratories, Inc., Milwaukee.

Ampoules Caffeine with Sodium Benzoate-Lakeside, 0.24 Gm. ($\frac{3\frac{3}{4}}$ grains) 2 cc.: An aqueous solution containing in each 2 cc. caffeine with sodium benzoate-U. S. P. 0.24 Gm. ($\frac{3\frac{3}{4}}$ grains).

Ampoules Caffeine with Sodium Benzoate-Lakeside, 0.49 Gm. ($\frac{7\frac{1}{2}}$ grains) 2 cc.: An aqueous solution containing in each 2 cc. caffeine with sodium benzoate-U. S. P. 0.49 Gm. ($\frac{7\frac{1}{2}}$ grains).

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 15, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the core of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE NEW DIRECTORY

The sixteenth edition of the American Medical Directory,¹ just from the presses and the bindery, contains 195,104 names of physicians, or an increase of 6,188 over the 1938 volume. Because of death, 7,586 names were dropped from the book; the names of 13,798 physicians, new graduates and physicians coming from foreign countries, have been added. Thirty-eight states and the District of Columbia show an increase in the number of physicians.

Refugee physicians seem to account for most of the increase in the Seaboard states. New York leads the list with a gain of 1,783, New Jersey 380, Massachusetts 361 and Pennsylvania 324. California shows a gain of

631 while Florida, the other winter resort state, has a gain of 204. Louisiana shows a notable increase of 264, due perhaps to the establishment of the Louisiana State University Medical Center. Next is Illinois with an increase of 246, just slightly less than the 1938 increase. The other Midwestern states also show increases slightly below those of 1938: Michigan 220 as compared with 277 in the previous edition; Ohio 201 against 210; Minnesota 101 against 143. Iowa, Kansas, Missouri and Nebraska continue their losses in the number of physicians, although the decreases are less than in previous years, possibly an indication that to some degree the rural sections are slowly recovering from the havoc wrought by the dust storms. The Southern states have shown a decrease in the number of physicians in each succeeding Directory. The decrease is now less than in former years. Alabama, Georgia and Mississippi have indicated a steady loss in each edition of the Directory since 1918 and have now gained three, sixty-nine and two physicians respectively, while Tennessee reduced its loss from twenty-two in 1938 to nine in 1940.

Included in this veritable storehouse of useful and dependable information that is the American Medical Directory are extensive data concerning the American Medical Association, its officers, constitution, by-laws, past presidents and the date and place of each meeting. The histories of 456 medical schools, including eighty-seven approved schools and schools of the basic medical sciences now in existence in the United States and Canada, are provided; the essentials of an acceptable medical school and the lists of graduate and foreign medical schools are also included. Also compiled by the Council on Medical Education and Hospitals is a list of hospitals approved for training interns as well as those approved for fellowships and residencies.

Prominent mention is given to the various examining boards in medical specialties now functioning. A brief history and the names of the officers of the various boards are given in the preliminary section. Symbols indicating certification by these boards appear in the data of more than 14,000 physicians in the body of the book.

As in previous editions, lists of medical journals, medical libraries, members of special medical societies, medical officers of the United States Army, United States Navy, United States Public Health Service, Veterans Administration and Indian Field Service are presented in the front section of the book.

In the main section of the Directory physicians are grouped by cities, in strict alphabetic order for each state. Published under each state are the medical practice acts, members of boards of medical examiners, state boards of health, county and city health officers and the officers of state and county medical societies.

¹ American Medical Directory. Sixteenth edition. Cloth. Price, \$18. Pp. 2,683. Chicago: American Medical Association, 1940.

Following this information is a list of hospitals and sanatoriums, with data regarding bed capacity, type of patients treated and the name of the superintendent. Each physician is biographically described—the year of his birth; his school and year of graduation; his state license; notation if he is a diplomate of the National Board of Medical Examiners and if he has been certified by one of the examining boards in medical specialties; membership in the American Medical Association; his affiliation with a special society; his military title or medical school professorship; his home and office addresses and his office hours. Even without the address of the physician he can be readily located in the complete alphabetic index, where all physicians are listed by name in alphabetic order followed by the city in which the physician is located.

To general practitioners, specialists, hospitals, medical libraries, insurance companies and industrial concerns, this directory is invaluable, paying for itself many times by saving time, trouble and confusion.

To the secretaries of the various medical examining boards of the United States and Canada, to the deans of medical schools, to the officers of the constituent state associations and component societies, to the various health authorities and to the thousands of physicians and correspondents who have so willingly assisted in making possible this edition—we extend our thanks and express our appreciation.

TUBERCULOUS BACILLURIA

Can tubercle bacilli pass through a normal kidney? This question involves the larger question of physiologic excretion of bacteria through normal kidneys. The experimental studies of Wyssokowitsch and the microscopic studies of Opitz, von Klecki and Koch demonstrate that bacteria injected into the blood stream rapidly disappear from the circulation. They tend to pass through the circulation of the kidneys to lodge in other organs, such as the liver, the spleen, the lungs and the bone marrow, where they are subsequently destroyed by the tissue cells. This, and not excretion by the kidneys, appears to be the main defense mechanism of the body in cases of blood stream infection. The more specific question as to whether or not a normal kidney can excrete tubercle bacilli has an important epidemiologic aspect and, in a narrower sense, a diagnostic significance. It would seem inadvisable to accept unqualifiedly the dictum of Casper and of Israel that the presence of tubercle bacilli in the urine indicates invariably tuberculosis of the kidney.

Foulerton and Hillier¹ were the first to report on tuberculous bacilluria in the absence of any evidence

of tuberculosis in the kidney. They demonstrated by animal inoculation the presence of tubercle bacilli in the urine of nine of eighteen patients suffering from chronic advanced pulmonary tuberculosis. Postmortem examinations were made in six of the positive cases and the kidneys on gross examination failed to exhibit tuberculous lesions. The report did not contain a microscopic study nor was the condition of the genitalia investigated. The numerous investigations that have followed the work of the English authors have given rise to three theories: (1) The normal kidney is permeable to tubercle bacilli, (2) the passage of tubercle bacilli is possible only in the presence of a pathologically altered kidney and (3) tubercle bacilli are capable of setting up in the kidney a nonspecific inflammatory condition, a tuberculous nephritis. According to Wildbolz this represents a special form of reaction on the part of the renal tissue to tubercle bacilli of attenuated virulence. The lesion is capable of healing or of terminating in cicatricial shrinking. Fedorov considered this a pre-tuberculous stage which could lead to the development of a typical tuberculous lesion—so-called excretion tuberculosis. The many sources of error in the solution of this complicated problem called for the application of the most exacting and rigorous scientific criteria. The diversity of opinions had its origin principally in the inadequate and faulty methods of investigation.

Dintza and Kartal² laid down the following criteria as indispensable for the solution of the problem: 1. The presence of tubercle bacilli in separated kidney urine must be demonstrated by animal inoculation and by culture. 2. One must prove that the bacilli came from the kidney: the possible contamination with tubercle bacilli from the genitalia in man must be ruled out by a complete urologic examination. 3. Careful microscopic and bacteriologic examinations of the kidney, employing the study of serial sections must be made.

Kielleuthner did not find tubercle bacilli in the urine of nineteen patients with advanced pulmonary tuberculosis and normal urine, while tubercle bacilli were found in three of a group of eighteen patients who exhibited albuminuria. The kidneys of these three patients did not show tuberculous lesions. Kielleuthner concluded that a nontuberculous but pathologic kidney was capable of excreting tubercle bacilli. He did not, however, stain the renal sections for tubercle bacilli nor did he inoculate renal tissue into animals.

In a careful study of 225 cases with extragenital tuberculosis, Dintza and Schaffhauser,³ of the Clairmont clinic, found tubercle bacilli in the urine of eight

1. Foulerton, A. G. R., and Hillier, W. T.: On the Urine in Tuberculous Infections, *British M. J.* 2:774 (Sept. 21) 1901.

2. Dintza, A., and Kartal, S.: Kritische Betrachtungen des bisher erschienenen Schrifttum über die Tuberkelbacillurie, *Ztschr. f. urol. Chir.* 35:416 (Nov.) 1932.

3. Dintza, A., and Schaffhauser, F.: Tuberkelbacillurie und initiale chronische Nierentuberkulose, zugleich ein Beitrag zur Früh-diagnose der chronischen, käsigen Nierentuberkulose, *Ztschr. f. urol. Chir.* 35:440 (Nov.) 1932.

patients. Nephrectomy was performed on all of these. Microscopic studies demonstrated the existence of caseous, cavitating lesions in each case. The authors concluded that the presence of tubercle bacilli in kidney urine indicates the existence of a tuberculous lesion in the kidney. They emphasized, however, that the lesion may be minute and require a painstaking study of serial sections.

Lieberthal and von Húth⁴ injected tubercle bacilli into the ear vein or into the left ventricle of female rabbits. The urine was collected for twenty days and was centrifuged and cultured for tubercle bacilli according to the method of Loewenstein-Sumyoshi on the egg medium of Hohn. Careful microscopic studies demonstrated that a physiologic excretion of bacteria by the kidneys does not occur, that tubercle bacilli do not pass through the kidneys from the blood into the urine because of the comparatively mild immediate action of that organism on the renal tissue, and that previously induced degenerative or inflammatory lesions of the kidneys do not make that organ permeable for tubercle bacilli. The same authors⁵ report the results of a histopathologic examination of 240 tuberculous kidneys from the clinic of von Illyés. They state that in every case in which tubercle bacilli were demonstrated in the separated urine an ulcerated, caseous tuberculous focus was found in the corresponding kidney (usually on the renal papilla). The caseous center of such lesions usually contained numerous tubercle bacilli, which were readily demonstrable by Ziehl-Neelsen staining of serial sections of the ulcer. The authors were convinced that tubercle bacilli alone in the separated urine, even in the absence of pus and a functional defect, indicated the presence of a tuberculous focus in the kidney.

The possibility of a transient tuberculous bacilluria is suggested by Medlar's postmortem studies, in which he found healed, fibrous, cortical lesions in the kidneys of patients with chronic pulmonary tuberculosis and no suggestion of genito-urinary disease during life. His results are not altogether convincing, since he did not establish that the patients excreted tubercle bacilli at any time.

Wildbolz,⁶ in a recent review, says that one could not, on purely theoretical grounds, deny the possibility of healing of tuberculous cortical lesions with a tendency to fibrosis. To prove it, however, would require a combination of a clinical and pathologic investigation. Until such a demonstration is forthcoming, one would be safer in regarding tuberculous bacilluria unaccompanied by pyuria and loss of renal function as the earliest sign of renal tuberculosis.

4. Lieberthal, Frederick, and von Húth, Theodore: Tuberculous Bacilluria and Excretion Tuberculosis: An Experimental Study, *Surg., Gynec. & Obst.* 65: 440 (Oct.) 1932.

5. Lieberthal, Frederick, and von Húth, Theodore: Tuberculous Nephritis and Tuberculous Bacilluria: A Study of One Thousand Operated Cases of Renal Tuberculosis, *J. Urol.* 30: 153 (Aug.) 1933.

6. Wildbolz, H.: Ueber Urogenitaltuberkulose, *Arch. f. klin. Chir.* 196: 342, 1939.

CRYMOTHERAPY

Medicine owes its progress in part to the curiosity that constantly stimulates the search for new weapons with which to combat well known diseases or their newer pathologic variations. Among the methods which challenge scientific inquiry is the use of general and local refrigeration and its effects on tumor formations and the relief from pain. An experiment¹ recently conducted in Lenox Hill Hospital, New York, was inspired by the "artificial hibernation treatment" originated by Temple Fay and his associates of Temple University Medical School.² The Philadelphia investigators applied the technic to cancer patients in whom unconsciousness or semiconsciousness had been artificially induced in order to assuage pain. Fay and Smith had been able to refrigerate patients from 10 to 18 degrees below normal for periods varying from a few hours to as many as five days.

In the Lenox Hill Hospital experiment a room with a capacity of two beds was constructed, specially equipped, thermostatically controlled and, by air conditioning, maintained at a temperature of 55 F. The crymotherapeutic experiment lasted four months and was performed on twenty-seven patients. Proper instructions were given in advance to the intern and nursing personnel in the clinical and technical details to be employed. Precautions were taken to protect the nurses against undue or prolonged exposure to cold. Facilities for prompt telephonic communication with resident physicians were available. Selection of the patients was based on their fair general condition, if able to be up and about, or, if bedridden, on the presence of intractable pain or large measurable tumor masses. Most of the patients (twenty-two) presented different forms of grave carcinoma, such as carcinoma of the prostate, bladder, heart, cervix, thyroid and colon.

In the procedure followed the patient received chloral and bromides the night before and phenobarbital in the morning. A Levine or Einhorn tube was passed into the stomach and the patient rendered unconscious by rectal and intravenous injections of two generally known anesthetics. He was then brought into the room and placed naked on a bed. The thermocouple was inserted into the rectum, a rubber-covered wire cable leading from the patient's rectum to the recording dial on the wall. The wrists and ankles were tethered with padded restraining loops. The patient's trunk, from the shoulders to half way down the thighs, was then packed with loose ice of the size of nut coal. This ice pack was maintained until the rectal temperature reached 90 F.

1. Gerster, John C. A.; Kossmann, Charles E.; Reich, Carl; Bernhard, Adolph; Geiger, Jacob; Davis, Thomas K.; McGuinness, Madge C. L.; Kenyon, Herbert R.; Dixon, John F.; Huber, Frank; Paltauf, Rudolf M.; Sauer, Paul Kurt, and Whittemore, Laurence W.: General Crymotherapy: A Symposium, *Bull. New York Acad. Med.* 16: 312 (May) 1940.

2. Fay, Temple, and Henny, George C.: Symposium on Cancer: Correlation of Body Segmental Temperature and Its Relation to the Location of Carcinomatous Metastasis, *Surg., Gynec. & Obst.* 66: 512 (Feb., No. 2A) 1938. Smith, L. W., and Fay, Temple: Temperature Factors in Cancer and Embryonal Cell Growth, *J. A. M. A.* 113: 653 (Aug. 19) 1939.

(a process requiring usually from one and one half to two and one half hours). It was then removed and the patient dried. At a room temperature of 55 F. the patient's rectal temperature would go down to 80 F. Normal temperatures were kept between 80 and 85 F. If the temperature became too low, blankets and lukewarm water bags were used. If the temperature rose, ice bags without cloth coverings were applied to the trunk and upper thighs. The temperature, pulse, respiration and blood pressure were charted every half hour. Through a stomach tube a dose of 2 ounces (60 cc.) of physiologic solution of sodium chloride with a 10 per cent dextrose solution was instilled every hour. For restlessness, sodium amytal or soluble phenobarbital was usually given in suitable quantities. Twice a day the stomach was siphoned empty. Once a day the stomach was lavaged with a quart (liter) of physiologic solution of sodium chloride, a pint at a time. When treatment was to be discontinued, the air conditioning apparatus was shut off and the room allowed to return to normal temperature. The patient was covered with blankets and the body slowly restored to the normal temperature. This required from six to eight hours. Not until then was the patient returned to the ward. Inductions could be repeated five times or more, depending on the patient's general condition.

The authors report that in eleven of seventeen cases of intractable pain due to carcinoma there was sufficient alleviation of pain to obviate the necessity of administering narcotics for variable periods. In one case of prostatic carcinoma the patient had been unable to lie on his back for more than a few minutes at a time. After the first session in cryotherapy he was able to do so without large doses of morphine and cobra venom. In some cases there was little or no relief from pain. Eventually pain recurred in all cases, in some as early as twenty-four hours after treatments were discontinued. Once relief lasted as long as eight weeks. Recurrence of pain and progress of cachexia may be due to the fact that the intervals between treatments were too long. Regression of primary tumors or metastases was not observed, nor could unusual cell alterations or changes attributable to the effect of the treatment on neoplastic tissue be demonstrated. Roentgenoscopy of bone metastases in two cases showed a definite increase. The presence of pulmonary metastases seemed to predispose to pulmonary complications, though otherwise risks from pneumonia and nephritis were not as great as expected. Neurologic observations after the treatment did not differ from the neurologic status before. Thirteen of the twenty-seven patients died subsequently, within six to forty-six days after their last induction, from a variety of causes.

The authors suggest the extension of cryotherapeutic experimentation to other diseases, such as Hodgkin's disease, venereal lymphogranuloma and subacute bacterial endocarditis. A patient with noncarcinomatous drug addiction, who had taken from 6 to 8 grains

(0.4 to 0.5 Gm.) of morphine daily for at least fifteen years, after five days of the treatment lost her craving for the narcotic and experienced her first normal menstruation in seven years. Local cryotherapy was performed in too limited a degree to warrant conclusions as to its merits. Vaughn,³ in a recent report on cryotherapy applied to six patients with hopeless metastatic carcinoma, found that relief of pain was "the only result of possible value" achieved. He regards the procedure as hazardous and not justifiable in the treatment of advanced metastatic carcinoma.

In general, these results seem to promise little or nothing for this method as a general treatment for carcinoma. Nevertheless the therapeutic uses of cold may be considerable. Such biologic investigations as have been recorded have added greatly to scientific knowledge of the effects of cold on living tissue.

Current Comment

HYPERTENSION AND THE THIOCYANATES

As early as 1903 it was known that the continued administration of the thiocyanates is often effective in reducing hypertension. Because of toxic reactions, interest in the therapy was not strong until 1925, when Westphal reintroduced the subject. Although some investigators have felt them to be of value, others have regarded them as useless and dangerous. In 1929 the Council on Pharmacy and Chemistry reported the evidence for the value of the thiocyanates to be far from conclusive; moreover, their use seemed to be definitely contraindicated in acute inflammation of all types, in nephritis and in severe renal insufficiency. In many cases of hypertension the production of lowered pressures does more harm than good. Since that report, the Council's attention has been drawn to such toxic reactions as cutaneous eruptions, vertigo, gastrointestinal upsets, weakness of the arms and legs and mental manifestations. A recent communication¹ revealed eight fatalities reported as following the intake of thiocyanate. Hamilton² studied the blood pressures of street dogs and reported a significant lowering of pressure in the hot summer weather and higher values in the winter. Administration of sodium thiocyanate to dogs with the highest values resulted in a fall in pressure, but the fall was of no greater magnitude than that which naturally occurred with the season of the year. He concluded that the thiocyanate did not produce a significant permanent lowering of blood pressure in hypertensive dogs. In view of the results of these workers, the value of sodium or potassium thiocyanate, in the light of its dangerous possibilities, seems more doubtful than ever.

3. Vaughn, Arkell M.: Experimental Hibernation of Metastatic Growths, *J. A. M. A.* **114**: 2293 (June 8) 1940.

1. Garvin, C. T.: The Fatal Toxic Manifestations of the Thiocyanates, *J. A. M. A.* **112**: 1125 (March 25) 1939.

2. Hamilton, W. F.; Pund, E. R.; Slaughter, R. F., Jr.; Simpson, W. A.; Colson, G. M.; Coleman, H. W., and Bateman, W. H.: Blood Pressure Values in Street Dogs, *Am. J. Physiol.* **128**: 233 (Jan.) 1940.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

District Meetings.—The Third Councilor District Medical Society met at Brinkley, May 16. Among the speakers were Drs. Herbert Fay H. Jones, Little Rock, on "Treatment of Specific Urethritis"; Lucius Carl Sanders, Memphis, Tenn., "Heart Disease"; Joseph F. Shuffield, Little Rock, "Treatment of Colles' Fracture," and Frank Thomas Mitchell, Memphis, Tenn., "Intestinal Disorders in Children."—The Fifth Councilor District Medical Society was addressed at Waldo, May 14, by Drs. William Hibbitts, on "Significance of Early Recognition of Acute Abdominal Emergencies"; Chester E. Kitchens, "Sulfapyridine and Sulfanilamide, Their Uses in Diseases of Children," and Theron E. Fuller, "Some Eye, Ear, Nose and Throat Topics of Interest to the General Practitioner." All were from Texarkana.—The Second District Medical Society was addressed in Batesville, April 8, by Drs. Henry V. Stewart, Little Rock, "Laboratory Service in Preventive Medicine"; George V. Lewis, Little Rock, "Management of Hyperthyroidism," and Wayne M. Hull, Oklahoma City, "Inhalation Therapy."

CALIFORNIA

State Medical Election.—Dr. Henry S. Rogers, Petaluma, was named president-elect of the California Medical Association at its recent annual meeting in Coronado, and Dr. Harry H. Wilson, Los Angeles, was installed as president. The next annual meeting will be in Del Monte.

Forty Years as Chief Surgeon.—Dr. Oliver D. Hamlin, since 1900 chief surgeon at the Alameda County Receiving Hospital, retired May 20. Dr. Hamlin graduated at the Cooper Medical College, San Francisco, in 1894. He has served as president of the Alameda County Medical Association and of the California Medical Association and for six terms was a member of the House of Delegates of the American Medical Association.

New Trudeau Society.—The California Trudeau Society was organized in Santa Barbara, April 13, with the following officers: Drs. Buford H. Wardrip, San Jose, president; Reginald H. Smart, Los Angeles, president-elect; William L. Rogers, San Francisco, vice president; Ennil Bogen, Olive View, secretary-treasurer. William Ford Higby is executive secretary. The society, which is composed of physicians interested in tuberculosis, it is proposed, will be responsible for the medical portion of the programs for annual meetings of the California Tuberculosis Association.

DISTRICT OF COLUMBIA

Annual Extension Course.—The fifth annual alumni extension course of Georgetown University School of Medicine, Washington, was conducted June 7-8. Among the speakers were:

- Dr. Philip A. Caulfield, Infections of the Hand.
- Drs. William J. Cusack and Fred O. Coe, Abdominal Pregnancies with Successful Termination (2 Cases).
- Dr. Antoine Schneider, Differentiation Between and Interrelationship of the Organic, the Functional and Malingering in Neuropsychiatry.
- Dr. Frank J. Eichenlaub, Common Skin Diseases and Their Office Treatment: Illustrated with Colored Lantern Slides from the Collection of Dr. Robert Stolar.
- Dr. William B. Porter, Richmond, Va., Relationship of Nutritional Deficiency to the Clinical Course of Cardiovascular Disease.
- Dr. Lloyd G. Lewis, Baltimore, Arterial Hypertension from the Urologic Standpoint.

IDAHO

Hospital News.—The new Grangeville Hospital, costing about \$60,000, was opened for use April 15; it has a bed capacity of twenty-five.—A forty bed addition is being planned for St. Anthony Mercy Hospital, Pocatello, at a cost of \$75,000; it will increase the capacity to 100 beds.

Annual Registration Due July 1.—All practitioners of medicine and surgery holding licenses to practice in Idaho are required by law to register annually on July 1, with the Department of Law Enforcement, and at that time to pay a fee of \$2. If a licensee has not paid the annual registration fee by October 1, his license can be canceled but will be restored within five years thereafter on payment of the delinquent fees and a \$10 penalty. If a license has been canceled for more than five years, it can be reinstated only on the payment of \$25 and on the licensee's passing an examination, the nature of which shall be determined by the Department of Law Enforcement.

INDIANA

Annual Postgraduate Course.—The eighth annual postgraduate course of Indiana University School of Medicine, Indianapolis, was held May 6-11. In addition to clinics and pathologic conferences the program covered a wide range of subjects, including "Radiculitis and Nucleus Pulposus in Relation to Back Pain"; "Quantitative Assay of Estrogens in Normal and Abnormal Menstrual Cycles"; "Is Acute Bowel Obstruction a Surgical Emergency?"; "Proper Surgical Management of Empyema," and "Deficiencies in or from Intestinal Dysfunction." Participating in the course were: Drs. Roy D. McClure and Frank W. Hartman, Detroit; William D. Stroud, Philadelphia; Edward L. Compere, Chicago; Paul W. Harrison, medical missionary, Arabia, and Bryng Bryngelson, Ph.D., Minneapolis. A round table on pediatrics was conducted by Drs. Stanley Gibson, Chicago, and Abraham B. Schwartz, Milwaukee, in collaboration with the Indiana Pediatric Society.

Dean Myers Retires at Bloomington.—Dr. Burton D. Myers, dean of the Indiana University School of Medicine at Bloomington, announces his retirement at the end of the current semester. He has been affiliated with the school since 1903, when he was made professor of anatomy. He was made assistant dean of the school in 1920 and dean in 1927. A native of Ohio, Dr. Myers received his medical degree from the University of Leipzig in 1902. He was superintendent of the Greenwich, Ohio, schools in 1893; assistant in physiology at Cornell University College of Medicine from 1898 to 1900, and assistant in anatomy at Johns Hopkins University School of Medicine 1902-1903. He was president of the Association of American Medical Colleges in 1928. Announcement was made of the retirement of the following part time members of the medical and dental faculty of the university: Dr. Alois B. Graham, chairman of the division of gastro-enterology and professor of surgery; Dr. Charles E. Cottingham, associate in neurology and psychiatry; Dr. John Tipton Wheeler, professor of anatomy at the dental school, and Dr. Louis DeKeyser Belden, associate professor of pathology, bacteriology and histology.

KENTUCKY

Society Elects Secretary for Life.—Dr. Herbert H. Hunt, Mayfield, was elected secretary-treasurer of the Graves County Medical Society for life at its annual meeting recently. He has held the office for the past thirty-six years.

New Health Officers.—Dr. Herman T. Carter, Edmonton, has been appointed director of a two county health unit for Green and Metcalfe counties.—Dr. Wallace Byrd, recently of Manchester, has been appointed health officer of Owen County to succeed Dr. Price Sewell Jr., now of Fayette County.—Dr. James W. Scudder, Carlisle, has resigned as health officer of Nicholas County.—Dr. Edward C. Humphrey, Somerset, has resigned as health officer of Pulaski County to accept a similar position in Mercer County. Dr. Mildred E. Burton, formerly of Berea, will succeed him in Pulaski.

LOUISIANA

Special Society Elections.—Dr. Herman Aubrey White, Alexandria, was elected president of the Louisiana State Pediatric Society at its twelfth annual meeting in New Orleans, April 22; Dr. Julian Graubarth, New Orleans, vice president, and Dr. William C. Rivenbark, New Orleans, secretary-treasurer.—Dr. Phillips J. Carter, New Orleans, was chosen president of the Louisiana Gynecological and Obstetrical Society at its annual meeting, April 20, in New Orleans.

Society News.—The Ouachita Parish Medical Society was addressed, April 4, by Dr. James Q. Graves, Monroe, on "The Drainage and Treatment of Appendiceal Abscess."—A symposium on geriatrics was presented before the Orleans Parish Medical Society, New Orleans, April 8, by Drs. Isidore L. Robbins, Theodore A. Watters, Allan C. Eustis and Isidore Cohn. Hymen S. Mayerson, Ph.D., presented a biographic sketch of Bennett Dowler, New Orleans physiologist, 1797-1879.

MASSACHUSETTS

Five Year Grant for Teaching and Research.—Under a five year grant for teaching and research in neurology from the Rockefeller Foundation to Tufts College Medical School, Dr. Kurt Goldstein, clinical professor of neurology, Columbia University College of Physicians and Surgeons, has been appointed to a similar position at Tufts.

Society News.—Dr. Roy D. Halloran, Waltham, was elected president of the New England Society of Psychiatry at its annual meeting in Hathorne, April 25; Dr. George E. McPherson, Belchertown, vice president, and Dr. Bardwell H. Flower, Boston, secretary-treasurer. —At a meeting of the New England Dermatological Society in Boston, April 10, Dr. Alan R. Moritz spoke on "Accident, Murder or Suicide?" —The New England Oto-Laryngological Society was addressed, April 10, among others, by Dr. Herman A. Winkler, Providence, R. I., on "Acute Surgical Mastoiditis Following Fracture of the Skull"; Warren E. Kershner, Bath, Maine, "Bronchial Asthma Due to Bacterial Allergy," and Adolphe J. Provost, Manchester, N. H., "Osteomyelitis of the Frontal Bone."

Personal.—Dr. Charles L. Clay has resigned as superintendent of Long Island Hospital, Boston, to accept a similar position at the Jackson Memorial Hospital, Miami, Fla. —Dr. Joseph E. Canby, Great Barrington, has been appointed medical examiner of the southern Berkshire area, newspapers reported, succeeding Dr. John B. Beebe, who has retired and is living in Florida. The area includes all towns from Stockbridge to the Connecticut line and west to the New York State line.

MICHIGAN

Society News.—Dr. Andrew H. Dowdy, Rochester, N. Y., addressed the Ingham County Medical Society in Lansing, April 16, on "The Role of X-Ray and Radium Therapy in the Control of Cancer and Allied Diseases." Dr. Henry M. Goodyear, Cincinnati, discussed "Practical and Helpful Hints to the General Practitioner in the Diagnosis and Treatment of Ear, Nose and Throat Conditions" before the Ingham County Medical Society in Lansing, May 2. —Dr. Gordon B. Myers, Detroit, addressed the Muskegon County Medical Society in Muskegon, April 19, on "Diseases of the Liver."

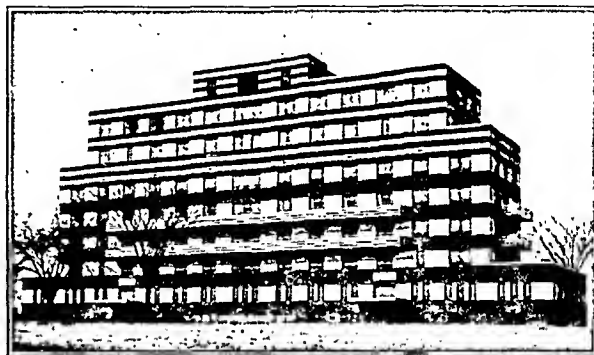
Special Society Elections.—Dr. George J. Curry, Flint, was chosen president-elect of the Michigan Association of Industrial Physicians and Surgeons at its recent annual convention in Grand Rapids, and Dr. Frank T. McCormick, Detroit, was installed as president. Other officers are Drs. Corydon L. F. DeVries, Lansing, vice president, and J. Duane Miller, Grand Rapids, secretary-treasurer. —Dr. James H. Dempster, Detroit, was recently elected president of the Michigan Association of Roentgenologists; Dr. Leland E. Holly, Muskegon, vice president, and Dr. James E. Lofstrom, Detroit, secretary-treasurer.

Plans for Medical Center in Detroit.—Plans for a \$50,000,000 program to build and operate a medical educational center in Detroit were announced, May 20, by Dr. Edgar H. Norris, dean of Wayne University College of Medicine, at the annual meeting of the Wayne County Medical Society. A group of doctors has been studying the plans which have received the endorsement of the Detroit Board of Education, the council of the medical society, officers of the university, trustees of the Wayne University Foundation and the advisory council of the medical school faculty. Four or five city blocks would be set aside for the center, forming the site for eight buildings at an estimated cost of between \$10,000,000 and \$12,000,000. The program proposes to raise \$50,000,000 from donors, the major portion to be used to support the work of the center, for research and for the personnel of the faculty. Maintenance would be left to the board of education, and the present budget of the medical school would be sufficient for permanent maintenance of the campus and its buildings, Dr. Norris said. The Wayne University Foundation was organized in 1938 to receive, manage and disburse grants and gifts to Wayne University and to promote scientific research and investigation.

MISSOURI

Annual Trudeau Lectures.—The annual lectures sponsored by the St. Louis Trudeau Club were delivered, April 23, by Drs. Hyman I. Spector and Everts A. Graham, St. Louis. Their subjects were "Differential Diagnosis in Hemorrhage from the Lung" and "Surgical Aspects of Hemorrhage from the Lung" respectively.

Million Dollar Cancer Hospital Dedicated.—The Ellis Fischel State Cancer Hospital at Columbia was officially opened, April 26. The hospital represents an investment of nearly \$1,000,000 and is said to be the "first hospital ever established by a state for the exclusive care of cancer sufferers." The PWA contributed about 45 per cent of the total cost. The seven story building has a capacity of eighty-five beds. The first floor contains administrative offices, diagnostic clinic and the high voltage x-ray therapy department. The second, third and fourth floors contain beds for patients. On the fifth floor are quarters for residents, the library and conference rooms. The operating rooms and the diagnostic x-ray department are on the sixth floor, while laboratories are located on the seventh floor. The kitchen, dining rooms, laundry and boiler rooms are in the basement. A total of 550 mg. of radium, representing an approximate value of \$16,500, and x-ray equipment costing \$27,717 will be available for the treatment of patients. There is a probability that an additional 150 mg. of radium will be available at the hospital later. The National Cancer Institute has made possible a considerable portion of the radium supply. Plans for the hospital were given legislative momentum in Jefferson City in 1937. The bill, which was passed in that year, provided for the erection of the hospital and called for the formation of a cancer commission and for the establishment of diagnostic clinics. Dr. Ellis Fischel, for whom the hospital is named, became the first chairman of the commission, and after he was killed in an automobile accident May 14, 1938, while driving to Jefferson City on commission business the chairmanship was taken over by Frank T. Hodgdon,



State owned cancer hospital.

banker, Hannibal. Other members of the commission are Dr. Frederick J. Taussig, vice chairman, St. Louis; and Dr. Paul F. Cole, Springfield, and William M. Clark, business executive of St. Joseph. Miss Dorothy A. Hehmann is executive secretary. The commission has offices at 3713 Washington Boulevard, St. Louis. The hospital will be governed and maintained by the commission. Columbia was considered an ideal site because it is virtually in the heart of the state. Originally, the 40 acre tract of land for the hospital was outside the city limits of Columbia, but in order to provide ultimate protection for the institution the city boundaries were extended to assure the use of Columbia's utilities such as light, water, fire protection and so on. No patient will be admitted by merely applying at the hospital. First he must obtain an application blank prepared by the commission. This blank is composed of three sections, the first certifying to the indigency of the patient, the second giving information on the patient's physical condition by a physician appointed by the county court of residence of the patient. If the court, on reviewing the application, is convinced that the patient is indigent and might be suffering from cancer, it will ask the hospital to admit the patient. The only charge to the county is \$5 per month per patient. There is no charge to the patient.

NEBRASKA

Society News.—Drs. Edwin Davis and John E. Courtney, Omaha, addressed the Omaha-Douglas County Medical Society, Omaha, May 14, on "Facts and Fancies Relating to the Etiology of Bladder Tumors" and "Gastrostomy" respectively. Dr. Walter C. Alvarez, Rochester, Minn., addressed the society recently on "The Ever Present Complaint: Indigestion, Its Significance and Its Management." Dr. Dean M. Lierle, Iowa City, addressed the society, April 9, on "Clinical Significance of Hoarseness." —Drs. John C. Peterson and James M. Woodward addressed the Lancaster County Medical Society,

Lincoln, recently, on "The Eye and Ear as Etiological Factors in Headache."—Drs. Osgoode S. Philpott and Constantine F. Kemper, Denver, addressed the Southwest Nebraska Medical Society, McCook, recently, on "Diagnosis and Management of Common Dermatological Conditions" and "Newer Procedures in the Practice of Endocrinology" respectively.—Dr. Foster L. Matchett, Denver, discussed fractures at a meeting of the Garden-Keith-Perkins County Medical Society in Ogallala, April 10.—At a meeting of the Adams County Medical Society in Ingleside, April 3, Dr. Donaldson W. Kingsley, Hastings, spoke on "Care and Treatment of Hip Fractures" and Mr. James D. Conway on legal aspects of medicine.

NEW YORK

New Health Officers.—Dr. Wilfred L. J. McDonald, Glens Falls, formerly an assistant district health officer, has been appointed health commissioner of Columbia County, effective April 1. Dr. Robert C. Hume, Olean, recently on the staff of the Cattaraugus County health department, has been appointed an assistant district health officer.

Conference of Health Officers and Public Health Nurses.—The annual Conference of Health Officers and Public Health Nurses will be held at the Grand Union Hotel, Saratoga Springs, June 25-27. Addresses at the opening session will be delivered by Governor Herbert H. Lehman, Dr. Edward S. Godfrey Jr., state health commissioner, and Dr. Thomas Parran, surgeon general, U. S. Public Health Service. Other speakers on the program will include:

Dr. Nathan B. Van Etten, New York.
Dr. Frank G. Boudreau, New York, Nutrition: The Next Step in Public Health.

Arthur H. Merritt, D.D.S., New York, Dentistry and Public Health.
Dr. Francis F. Schwenker, New York, Some Aspects of Scarlet Fever in Rumania.

Dr. John Rodman Paul, New Haven, Conn., Some Public Health Considerations of Rheumatic Fever and Rheumatic Heart Disease.

Dr. James A. Crabtree, Washington, D. C., Epidemiology of Cancer.

Dr. Don W. Gudakunst, New York, A Review of the Treatment and Prevention of Infantile Paralysis.

The public health nurses' meeting will feature a symposium on "keeping up with public health nursing."

New York City

Class of 1915 Scholarship Fund.—At the twenty-fifth anniversary of the graduation dinner of the class of 1915, New York University College of Medicine, May 11, the seventy-two physicians in attendance pledged that a scholarship fund will be raised annually to be donated to the medical college. It will be known as "The Class of 1915 Scholarship Fund." Contributions to this fund by members of the class may be mailed to Dr. Henry M. Scheer, 522 West End Avenue.

Physician Honored as Athletic Director.—Dr. John Brown Jr. was guest of honor at a recognition dinner, May 13, marking his retirement as physical director of the National Council, Y. M. C. A. Dr. Brown began his career with the "Y" in Toronto in 1897 as assistant physical director. His first post in the United States was in Mount Vernon, N. Y., in 1902. He was granted a commission of honorary major by the British War Office in London in 1917 in recognition of services to enlisted men in Canada and overseas; was appointed by President Coolidge as one of four delegates to represent the United States at the International Congress on Hygiene at Prague in 1925; was a member of President Hoover's White House Conference on Child Health in 1931 and was elected a "Fellow of International Scientific Association for Physical Culture at Berlin, 1936." Dr. Brown graduated at the University and Bellevue Hospital Medical College, New York, in 1910.

Society News.—Drs. Emery A. Rovenstine and Alvan L. Barach addressed the Medical Society of the County of New York, May 27, on "The Selection of a General Anesthetic" and "Oxygen Therapy and Helium-Oxygen Therapy: Recent Methods and Results in Clinical Medicine" respectively.—Drs. Thomas T. Mackie and Bret Ratner addressed the New York Physicians-Yorkville Medical Society, May 22, on "The Problem of Vitamin Deficiencies in the Adult" and "The Problem of Food Allergy in Childhood" respectively.—Speakers at a meeting of the New York Endocrinological Society, May 22, were Drs. George B. Dorff and Louis J. Soffer, on "Hormonal Therapy for Hirsutism" and "Modern Treatment of Addison's Disease" respectively.—Dr. Benjamin Jablons addressed the Medical Society of the County of Queens, May 28, on "Diseases of the Peripheral Vascular System."—Drs. Priscilla White and Alexander Marble, Boston, addressed the

Medical Society of the County of Kings, May 21, on "Diabetes in General and in Relation to Pregnancy" and "Diabetes in Relation to Surgery" respectively.—At a meeting of the Brooklyn Thoracic Society, May 17, the speakers included Strashimer A. Petroff, Ph.D., on "Bacteriology of Mixed Infection in Pulmonary Tuberculosis" and Dr. Monroe E. Greenberger, "Management of Urinary Tuberculosis."—Dr. James B. Collip, Montreal, Canada, addressed the anniversary meeting of the International Spanish Speaking Association of Physicians, April 15, on "The Pituitary Gland and Diabetes."

OHIO

Personal.—Members of the staff of St. Elizabeth Hospital, Dayton, who have served twenty-five years or more were honored at a testimonial dinner recently. The guests of honor were Drs. Roy S. Binkley, Gustav A. Hochwalt, John W. Millette, William H. Delseamp, Silas E. Hendren, Clement D. Smith, Curtiss Ginn, Arthur W. Carley, Wilson G. Clagett, John K. Larkin and O. B. Kneisley, D.D.S.—Dr. George H. Bradley, Cincinnati, recently retired after forty-five years in charge of the first aid unit of the Cincinnati Post Office.—Dr. and Mrs. Robert J. Baird, Creston, recently celebrated their sixty-fifth wedding anniversary.

Society News.—Dr. Edgar V. Allen, Rochester, Minn., addressed the Summit County Medical Society, Akron, April 2, on "Peripheral Vascular Diseases."—Dr. Willis S. Peck, Toledo, addressed the Academy of Medicine of Toledo and Lucas County, April 19, on "Roentgen Diagnosis of Some Common Chest Lesions."—Dr. Edwin J. Stedem, Columbus, discussed "Bleeding from the Uterus" at a meeting of the Montgomery County Medical Society, Dayton, April 19.—Dr. Harry Eagle, Baltimore, addressed the Academy of Medicine of Cincinnati, April 2, on "Practical Aspect of Current Investigative Studies in Syphilis." Dr. Francis E. Seneac, Chicago, was the speaker, April 9, on "Differential Diagnosis of Recurrent Skin Eruptions of the Hands and Feet." Dr. Lawrence W. Smith, Philadelphia, spoke, April 23, on "Human Refrigeration."

OREGON

Meeting of Health Officers.—The annual meeting of health officers and sanitarians of Oregon was held at Astoria and Seaside, May 23-25. Among other features was a symposium on communicable diseases, with Drs. Grover C. Belfinger, Salem, speaking on tuberculosis; John G. Strohm, Portland, gonorrhea, and William Levin, D.P.H., Portland, laboratory advances on typhoid.

Professorship of Surgery Established.—The income from a recent bequest of \$250,000 to the University of Oregon, Portland, will be used to establish a Kenneth A. J. Mackenzie professorship in surgery at the medical school, according to *Northwest Medicine*. Dr. Mackenzie was a member of the faculty from 1887 until his death in 1920, first as professor of the theory and practice of medicine and later as professor of operative and clinical surgery. He was also dean of the medical faculty from 1912 until his death. The new fund also includes an annual memorial fellowship of \$1,000 for premedical students.

PENNSYLVANIA

District Meeting.—The Seventh Councilor District of the Medical Society of the State of Pennsylvania held a meeting in Williamsport, April 12. The speakers included Drs. Emanuel Libman, New York, on "Observations on Abdominal Diagnosis with Special Reference to Hyposensitive Individuals"; John B. Nutt, Williamsport, "Eclampsia and Its Treatment at Williamsport Hospital," and Herbert T. Kelly, Philadelphia, "Healthful Living." The following officers of the state society made addresses: Drs. Charles H. Henninger, Pittsburgh, president; Francis F. Borzell, Philadelphia, president-elect; Walter F. Donaldson, Pittsburgh, secretary, and David W. Thomas, Lock Haven, past president. Awards to physicians who have been in practice for fifty years were made to Drs. James T. Hurd, Galeton, and Charles E. Heller, Williamsport.

Philadelphia

Annual Lectures at Jewish Hospital.—The following lectures, given recently, made up the 1940 group in a series sponsored annually by the Jewish Hospital: Drs. Isidor S. Ravdin, "The Management of Surgical Jaundice"; Arthur M. Fishberg, New York, "Hypertension and Pregnancy," and Walter I. Lillie, "Fetal Changes Associated with Arterial Hypertension."

MEDICAL NEWS

2395

Foundation to Study Treatment of Cancer.—The Foundation for the Study of Neoplastic Diseases has been created at the University of Pennsylvania Medical School by the Penn Mutual Life Insurance Company. It will be under the immediate direction of Dr. John S. Lockwood, with all chiefs of service in the University Hospital cooperating to coordinate the various units of the hospital. The project will be financed by the Penn Mutual Life Insurance Company for five years.

TEXAS

State Medical Election.—Dr. Neil D. Buie, Marlin, was chosen president-elect of the State Medical Association of Texas at its annual meeting in Dallas, and Dr. Preston Hunt, Texarkana, was installed as president. Other officers include Drs. George A. Schenewerk, Dallas; James J. Gorman, El Paso, and St. Julien R. Murchison, Fort Worth. Drs. Holman Taylor and Khleber H. Beall, both of Fort Worth, were reelected secretary and treasurer respectively. The 1941 session will be held in Fort Worth.

District Meetings.—The South Texas District Medical Society held its semiannual meeting in Beaumont April 25. Among the speakers were Drs. Samuel R. Snodgrass, Galveston, on "The Encephalogram and Its Abnormalities in Certain Clinical Disorders"; Taylor C. Walker, Beaumont, "Testosterone Propionate and Estrogenic Hormone in Vascular Diseases"; Loring M. Shipp, Henderson, "Acute Appendicitis in Children"; Gibson, Lufkin, "Diagnosis and Treatment of Acute Osteomyelitis." Dr. Leopold H. Reeves, Fort Worth, president of the State Medical Association of Texas, also made an address. The Northwest Texas District Medical Association held a meeting in Fort Worth, April 9. Following an all day scientific program, a banquet was held with the following speakers: Drs. Felix P. Miller, El Paso, on diagnosis of respiratory diseases; Henry R. Hoskins, Sanatorium, diseases of the lungs, and Leopold H. Reeves, Fort Worth, on the program of the state medical association.

VIRGINIA

Regional Meeting.—The South Piedmont Medical Society held its semiannual meeting in Turberville, April 16. A symposium on syphilis was presented by Drs. Walter S. L. McMann and Edwin E. Barksdale, Danville, and Edwin A. Harper, Lynchburg, with discussion by Dr. Thomas W. Murrell, Richmond. Other speakers included Drs. George B. Craddock, Richmond, on "Acute Hemolytic Anemia Occurring During Sulfanilamide Administration," and William H. Higgins, Richmond, "Modern Treatment of Chronic Hypertension."

John Horsley Memorial Prize Awarded.—Dr. Dupont Guerry, on the staff of the Manhattan Eye, Ear and Throat Hospital, New York, has been given the John Horsley Memorial Prize in medicine of \$600, in recognition of his discovery of "the use of vitamin K in stopping excessive bleeding in newborn infants." The work was done in association with Dr. William W. Waddell Jr., associate professor of pediatrics, University of Virginia Department of Medicine, Charlottesville. The fact that he graduated more than fifteen years ago from the medical school made Dr. Waddell ineligible for the prize.

WISCONSIN

University Lectures.—The sixth annual Charles R. Bardeen Memorial Lecture was presented at the University of Wisconsin Medical School, Madison, April 25, by Dr. Francis P. Daly, Chippewa Falls, under the auspices of the Phi Chi fraternity. Dr. Daly's subject was "Medicine as It Was Practiced in Wisconsin in the Horse and Buggy Days."—Paul H. Phillips, Ph.D., assistant professor of biochemistry, University of Wisconsin, addressed the university medical society, April 30, on "The Pathology of Certain Nutritional Deficiencies."

District Meetings.—A meeting of the Thirteenth Councilor District of the State Medical Society of Wisconsin was held in Antigo recently. Dr. William S. Middleton, Madison, spoke on "Coronary Occlusion" and "Bedside Medicine and the Newer Drugs" and Dr. Joseph W. Gale, Madison, on "Diseases of the Breast."—Dr. Frank H. Lahey, Boston, was the guest clinician at a joint meeting of the Third Councilor District Medical Society and the Dane County Medical Society in Madison, May 20. Drs. Ovid O. Meyer and Robert E. Burns, Madison, also participated in the program of dry clinics. In the evening Dr. Lahey was the speaker at a dinner meeting in honor of Dr. Henry V. Bancroft, Blue Mounds, who has completed fifty-five years in practice.

PUERTO RICO

Personal.—Dr. Mariano B. Caballero, San Juan, has been appointed a member of the Board of Medical Examiners of Puerto Rico to succeed Dr. Luis J. Fernandez, San Juan, whose term expired.

Bureau to Promote Health Education.—The Department of Health of Puerto Rico has established a new "bureau of medical education" to assist in educating the population in health matters in connection with the work of the various health units. The department is also cooperating with the School of Tropical Medicine and the University of Puerto Rico in plans for the establishment of a school of public health in San Juan for postgraduate training of public health officials, nurses, sanitary inspectors and laboratory technicians. Dr. Tomas F. Blanco, San Juan, has been placed in charge of the new bureau.

University News.—Recent speakers at the School of Tropical Medicine of the University of Puerto Rico under the auspices of Columbia include the following:
Dr. Jose Noya-Benitez, Acute Appendicitis in the Aged.
Dr. Rafael Rodriguez Molina, Sprue in the Puerto Rican Indigent.
Dr. Juan H. Font, Acute Frontal Sinusitis.
Dr. Luis J. and Ricardo F. Fernandez, Glaucoma, Its Etiology, Pathology and Treatment.
Dr. Jemaro Suarez, Differential Diagnosis and Treatment of Certain Forms of Uterine Hemorrhage.
Dr. Kenneth B. Turner, New York, and Enrique Koppisch, held a clinicopathologic conference at the school, April 28.

Society News.—At a meeting of the Humacao District Medical Society, May 5, the speakers included Drs. Ng William Hing, on "Blood Transfusion and Parenteral Fluid Administration in Pediatrics"; Charles M. Carpenter, Rochester, N. Y., "Diagnosis of Gonococcal Infection"; Eva F. Dodge, Montgomery, Ala., "Newer Aspects of Nutrition During Pregnancy," and Oscar Costa-Mandry, San Juan, "Extension of Laboratory Service in Puerto Rico." Dr. Carpenter also addressed the San Juan County Medical Society, April 29, on "The Mode of Action of Sulfanilamide and Its Derivatives," and Dr. Kenneth B. Turner, New York, April 19, on "The Chemotherapy of Pneumonia." Dr. Carpenter spent five weeks on the island assisting the department of health in the organization of a program for control of gonorrhea.

GENERAL

Increase in Spotted Fever.—The U. S. Public Health Service reported a sharp rise of Rocky Mountain spotted fever in the Western states during the week ended April 27. Eleven cases were reported in five states, four of them in Montana. The report suggests that health officers issue precautionary measures for the public.

New Medical Director of Riggs Foundation.—Dr. Horace K. Richardson was elected medical director of the Austen Riggs Foundation, Inc., at its annual meeting in Stockbridge, May 11, succeeding Dr. Austen F. Riggs, who died March 5. Dr. Robert B. Hiden was elected senior assistant medical director and Dr. Charles H. Kimberly, junior assistant medical director.

Special Society Elections.—Dr. George E. Bennett, Baltimore, was chosen president-elect of the American Orthopaedic Association at its recent session in Kansas City, and Dr. David E. Robertson, Toronto, was installed as president. Other officers include Drs. Norman T. Kirk, San Francisco, vice president; Charles W. Peabody, Detroit, secretary, and Rexford L. Diveley, Kansas City, Mo., treasurer. Toronto was tentatively selected as the place for the 1941 meeting. — Dr. David Cheever, Boston, was elected president of the American Surgical Association at its recent meeting in St. Louis; other officers include Drs. Howard C. Naffziger, San Francisco, and Roscoe R. Graham, Toronto, vice presidents. The convention in 1941 will be in White Sulphur Springs, W. Va.

Librarians Meet.—The forty-second annual meeting of the Medical Library Association will be held at the Heathman Hotel, Portland, Ore., June 25-27. There will be a symposium on history and literature of epidemiology with emphasis on some Pacific Coast aspects, with Dr. Thomas L. Meado, Harry J. Sears, Ph.D., Portland, discussing plague; William Levin, D.P.H., Portland, discussing the introduction and Ph.D., Hamilton, Mont., Rocky Mountain spotted fever. Olof Larzell, Ph.D., Portland, will direct a panel discussion on methods in regional medical historical research and Dr. Philip A. Smith, Seattle, will discuss "Growth, Development and Problems of a Regional Medical Periodical." Other

speakers will include Miss Lucy M. Lewis, Oregon State System of Higher Education, "Use of Microfilm in Library Instruction and Service"; Dr. Ira A. Manville, associate clinical professor of nutrition, University of Oregon Medical School, Portland, "Bibliographic Problems Based on a Study of Terminology in the Field of Nutrition," and Miss Amelia Feary, University of Oregon Medical School, "The Medical Social Worker Looks to the Library."

Committees to Cooperate with Army and Navy Medical Corps.—The division of medical sciences of the National Research Council has appointed the following committees to cooperate with the medical corps of the U. S. Army and Navy:

Committee on Chemotherapeutic and Other Agents:

Dr. Perrin H. Long, chairman, Baltimore.
Dr. Frances G. Blake, New Haven.
Dr. John S. Lockwood, Philadelphia.
Dr. John F. Mahoney, Staten Island, N. Y.
Dr. Eli Kennerly Marshall Jr., Baltimore.

Subcommittees:

Infectious Diseases, Dr. Blake, chairman.
Tropical Diseases, Dr. Wilbur A. Sawyer, New York, chairman.
Venereal Diseases, Dr. Joseph E. Moore, Baltimore, chairman.
Wounds and Burns, Dr. Everts A. Graham, St. Louis, chairman.

Committee on Transfusions:

Dr. Walter B. Cannon, Boston, chairman.
Dr. Alfred Blalock, Nashville, Tenn.
Dr. Everett D. Plass, Iowa City.
Dr. Max M. Strumia, Bryn Mawr, Pa.
Dr. Cyrus C. Sturgis, Ann Arbor.

Subcommittees:

Blood Substitutes, Dr. Sturgis, chairman.
Anesthesia in Shock, Dr. Blalock, chairman.

These committees are the result of an informal request for advice from the two medical corps.

Guggenheim Fellowships Awarded.—Among seventy-three fellowships recently awarded by the John Simon Guggenheim Foundation were the following for research on medical and allied topics: Gregory Pineus, Sc.D., Clark University, Worcester, Mass., fellowship renewed for investigation of the developmental physiology of mammalian eggs and embryos; Myron Gordon, Ph.D., research zoologist, New York, genetic studies and investigation of neoplastic diseases in vertebrate animals; Dr. David L. Drabkin, assistant professor of physiological chemistry, University of Pennsylvania School of Medicine, Philadelphia, research on biologic oxidation-reduction processes with William Mansfield Clark, Sc.D., De Lamar professor of physiological chemistry and director of the department of physiological chemistry, Johns Hopkins University School of Medicine, Baltimore; Berry Campbell, Ph.D., assistant professor of anatomy, University of Oklahoma School of Medicine, investigation of the integrative mechanisms of the spinal cord; John Tileston Edsall, associate professor of biological chemistry and tutor in biochemical sciences, Harvard Medical School, Boston, studies of the physical chemistry of amino acids, peptides, proteins and related compounds, and Raymond L. Zwemer, Ph.D., Columbia University College of Physicians and Surgeons, New York, study of factors involved in the maintenance by living cells of a differential permeability to electrolytes, to be carried out at the University of Buenos Aires, Argentina, in association with Dr. Bernardo A. Housay, professor of physiology.

Safety Awards for 1939.—Rhode Island among states and Kansas City among cities won the national grand awards of the National Safety Council for the best safety records and programs of activity during 1939. Rhode Island in addition won first place in the eastern division of states, Minnesota in the midwestern division, Washington in the western division and Oklahoma in the southern division. Cities that won first place in their population groups were Cleveland among cities of 500,000 or more population, Kansas City in the 250,000 to 500,000 population group, Worcester, Mass., in the 100,000 to 250,000 group, Pontiac, Mich., in the 50,000 to 100,000 group, Foxburg, W. Va., in the 25,000 to 50,000 group, and Aberdeen, S. D., in the 10,000 to 25,000 group. In addition there was a special honor roll of 179 cities of from 5,000 to 10,000 population that went through 1939 without a traffic death. At the annual award dinner held at the Drake Hotel in Chicago a special award was given to Edward G. Robinson "because on many occasions he has devoted his popular radio program 'Big Town' to a dramatic and powerful appeal for safer driving and walking." Kansas City won the award "because of its remarkable reduction of 53 per cent in its traffic deaths, the result of an unusually comprehensive program carried on by the city traffic engineer, the police department, the schools and the Kansas City Safety Council," the National Safety Council announced. Rhode Island achieved a rate of only four traffic deaths per hundred million vehicle miles, the lowest rate for any state and less than one third of the national average.

CANADA

Summer School at Vancouver.—The annual summer School of the Vancouver Medical Association will be held, June 25-28, at the Hotel Vancouver in Vancouver. The lecturers will be:

Dr. William S. Middleton, dean and professor of medicine, University of Wisconsin Medical School, Madison.

Dr. Frederiek L. Reichert, professor of surgery, Stanford University School of Medicine, San Francisco.

Dr. Philip C. Jeans, professor of pediatrics, State University of Iowa College of Medicine, Iowa City.

Dr. William Magner, assistant professor of pathology, University of Toronto Faculty of Medicine, Toronto.

Dr. Alfred W. Farmer, junior demonstrator of surgery, University of Toronto Faculty of Medicine, Toronto.

Information may be obtained from Dr. Harold H. Caple, 203 Medical Arts Building, Vancouver, B. C.

Awards in Health Conservation Contest.—First award in the rural health conservation contest sponsored by the Canadian Public Health Association in cooperation with the American Public Health Association and financed by the W. K. Kellogg Foundation went to the St. James-St. Vital full time health unit in Manitoba. The medical officer is Dr. Irving M. Cleghorn, Winnipeg. Awards of merit were given to the Terrebonne County health unit, St. Jerome, Que.; Foothills full time health district, High River, Alberta; Nicolet County health unit, Nicolet, Que., and Laviolette County health unit, Grand' Mère, Que. A special award for having won the Canadian contest twice and for having maintained its high standard in 1939 went to the health unit of the counties of St. Jean, Iberville, Laprairie and Napierville, Que.

FOREIGN

Cameron Prize Awarded to Dr. Dodds.—The University of Edinburgh has awarded the Cameron Prize to Dr. Edward Charles Dodds, professor of biochemistry, University of London, for his work on synthetic estrogens, the *British Medical Journal* reports. Dr. Dodds is director of the Samuel Augustine Courtauld Institute of Biochemistry, chemical pathologist to the Middlesex Hospital and the Royal National Orthopedic Hospital. He is the author of "Recent Advances in Medicine" (with G. E. Beaumont); "The Chemical and Physiological Properties of the Internal Secretions" (with F. Dickens); and "The Laboratory in Surgical Practice" (with L. E. H. Whitby), as well as of various papers in medical periodicals.

Government Services

Dr. McCoy to Retire from Public Health Service

Dr. George Walter McCoy, professor of preventive medicine and public health, Louisiana State University School of Medicine, New Orleans, will retire from the U. S. Public Health Service, June 30, after forty years' active service. Dr. McCoy graduated at the University of Pennsylvania School of Medicine, Philadelphia, in 1898 and served his internship at the City Hospital, Newark, N. J. He entered the U. S. Marine Hospital Service, now the U. S. Public Health Service, in 1900. In 1913 he was made surgeon in the public health service and in 1930 medical director. He was in charge of the plague laboratory in San Francisco, 1908-1911, and director of the leprosy investigation station in Hawaii, 1911-1915, when he also acted as medical and sanitary adviser to the Territorial Government of Hawaii. In 1915 he was detailed as director of the Hygienic Laboratory, now the National Institute of Health, in Washington, D. C., where he served until 1937. Since then he has been engaged in epidemiological studies on leprosy and since 1938 has been director of the department of preventive medicine and public health at the Louisiana State University School of Medicine, New Orleans. From 1922 to 1927 he represented the United States on the Permanent Standards Commission of the Health Section of the League of Nations. He has been a member of the Council on Pharmacy and Chemistry of the American Medical Association since 1915 and of the U. S. Pharmacopeial Revision Committee since 1920. In 1931 he was awarded the Sedgwick Memorial Medal of the American Public Health Association. As a member of the Committee for the Protection of Medical Research of the American Medical Association for about twenty years Dr. McCoy had the responsibility of providing congressional committees with information in connection with bills introduced by antivivisectionists and antivaccinationists which had for their purpose the hampering of scientific progress in medicine through animal experimentation.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 10, 1940.

Conscription of the Medical Profession

The result of the great expansion of the army is that 90 per cent of the medical officers were civilian physicians until a few months ago. For the regular medical service the limit of the age for admission was fixed at 38 years at the time of the outbreak of war; it has since been raised to 50 years. It is now proposed to conscript the medical profession up to that age.

A Visor for the Prevention of War Injuries of the Eye

At the annual congress of the Ophthalmological Society, Sir Richard Cruise demonstrated a visor which he invented for attachment to the steel helmet worn by soldiers. By a single movement it can be brought down over the upper part of the face and similarly can be retracted within the helmet. The mesh is so fine that exceedingly small missiles are prevented from entering the eye, while at the same time vision is only slightly limited. Cruise has found that fragmentation from explosives is the primary cause of war blindness. In the last war the majority of ocular injuries were due to small metal fragments penetrating the eye. Cruise believes that well over half the cases of blindness in the last war would have been prevented by the visor, which consists of 22 gage duralumin, molded so as to fit the inner curvatures of the steel helmet, to which it is attached by rivets. A spring adjustment enables it to be kept within the helmet.

The congress unanimously passed a resolution that this visor would prevent the majority of cases of blindness caused by gunshot wounds, and repeated its recommendation, made in 1917, during the last war, that some such visor should be adopted. The resolution was sent to the Admiralty, the War Office and the Home Office.

Idiopathic Ulcerative Colitis

At the Royal Society of Medicine, Mr. L. E. C. Norbury opened a discussion on the surgical treatment of idiopathic ulcerative colitis. In spite of the word "ulcerative" it was uncommon to see ulcers except in advanced stages. The rectum was usually involved. Columns of edematous mucous membrane corresponded to the position of the taenia coli. In severe involvement the epithelium seemed to have almost completely disappeared. He pleaded for more extensive use of appendicostomy as a means for colonic irrigation and application of medications. It was important not to open the appendix until some days after operation, so as to avoid infection of the wound. The appendicostomy should not be closed because of the possibility of relapse. For irrigation warm physiologic solution of sodium chloride or hypotonic saline solution might be used, or a mixture of sodium chloride, sodium bicarbonate and sodium baborate. Cecostomy could be done if the appendix was not available. Terminal ileostomy should be reserved for advanced cases or cases in which appendicostomy failed. Colectomy was unnecessary in the early stages and dangerous later.

Mr. W. H. Ogilvie found the evidence that these patients did better under appendicostomy than under medical treatment unconvincing. It did not rest the colon or enable it to be washed out better than from below. Many cases were arrested by medical treatment. Absolute indications for surgical therapy were stricture, polyposis and fistulas. Presumptive indications were severe loss of blood, a year's unsuccessful bed treatment, a fourth relapse and segmental distribution of the disease. Surgical treatment consisted in exclusion, excision and restoration. Exclusion ileostomy was to be recommended, and colectomy followed at the time of choice. The last stage, implantation of

the ileum into the rectum, should be undertaken only when the patient was really well and the rectum was soft and healed. If defecation could not be restored, colectomy was pointless. Thus ileostomy was in most cases the whole treatment. American writers laid stress on the loss of fluids with ileostomy, but Ogilvie had not found dehydration a problem.

Mr. W. B. Gabriel stressed the importance of spasm of the colon in ulcerative colitis. It might occur in nervous persons from emotional disturbance, vitamin deficiency or trauma. He recommended appendicostomy as the best surgical treatment. It allowed instillation of oil into the colon at night and washing out in the morning.

Sir Arthur Hurst said that the attribution of ulcerative colitis to spasm was fallacious. It should be realized that there was such a thing as medical colitis, in many cases presenting normal sigmoidoscopic appearances. He agreed with Ogilvie that appendicostomy was useless; the proper operation was ileostomy. No elaborate lavage was needed; an inch of soft catheter in the rectum would wash out the cecum and colon. Olive oil was useful in the stomach because it inhibited gastric secretion, but in the colon it decomposed and became irritant. The reason for the unsatisfactory loss of fluid with treatment by ileostomy in America was that there was enteritis as well as colitis. Hurst presented his series of eighty-five private patients treated up to 1937. Of these 77 per cent were well, 10 per cent were not, 2 per cent were definitely ill and the mortality was 9 per cent, which was less than half that quoted for cases in which appendicostomy had been done.

BUENOS AIRES

(From Our Regular Correspondent)

May 3, 1940.

Control of Narcotic Drugs

In accordance with a decree promulgated the latter part of last year and effective Jan. 1, 1940, the importation of heroin and its derivatives into Colombia is prohibited. The same restriction applies to the manufacture of heroin. The cultivation of marihuana is likewise prohibited. Licenses issued to physicians for the treatment of addicts are valid only for two months. They are renewable only if the physician can attest that a reduction in the use of the drug has been achieved; otherwise the patient is consigned to a sanatorium.

In Guatemala, according to a report of E. Arroyave L. in the *Boletín sanitario de Guatemala*, the problem of the illicit use of narcotics has almost disappeared since physicians received official permission to write narcotic prescriptions for addicts who voluntarily submitted to the regulations. The drugs used, in the order of preference, are cocaine, morphine and heroin.

In Mexico extensive measures governing the control of narcotics throughout the country have been drafted by the Oficina de Toxicomanías e Higiene Mental. The department of public health has charge of developing the methods of treatment. All persons who habitually use narcotic drugs without therapeutic necessity are designated as addicts. The dispensing of drugs to addicts is regulated in detail. The health department is charged with organizing the dispensaries and hospitals needed. The isolation of addicts is decided either by the managing physician or by the physician connected with the dispensary, on authorization of the department of mental hygiene. The extent to which the regulations adopted in 1931 have been carried out can be discerned from an article by Salazar Viniegra L. in which he states that so far only one hospital necessary for the treatment of drug addicts is in operation. It is situated in Mexico City and forms an annex of the hospital of mental diseases with a maximum of 100 beds. Habitual users of opiates and marihuana taken there for treatment can be given treatment for only a few days at a time. In consequence patients in the course of three years have been treated there as often as from two to ten times. The medical and

social benefits derived from this hospital are therefore insignificant. The problem is not regarded as serious in Mexico. It is assumed that only 6,000 addicts are found in Mexico City and still fewer in the rest of the country. Of course, the illicit traffic in drugs over the border constitutes a problem.

The National Bacteriologic Institute

The bacteriologic institute of the national department of public health situated in Buenos Aires was founded in 1916, with Prof. Rudolf Kraus, an Austrian bacteriologist, its first director. Kraus was succeeded by Prof. Alois Bachmann. Prof. Alfredo Sordelli has been its director since 1924. The institute has a fourfold function: the preparation of biologic products, the diagnosis and epidemiologic investigation of autochthonous transmissible diseases, research and the control of biologic and other products used for medical and hygienic purposes. On the recommendation of the tenth Pan American Health Conference the institute was chosen by the committee on hygiene of the League of Nations as the distribution center for South America of internationally standard preparations (epinephrine, digitalis, endocrine preparations, vitamins and antitoxins).

The biologic products are prepared by a special division of the institute. In 1938 the value of these preparations exceeded 4,800,000 pesos (about \$1,550,000). The expenditures of the institute, amounting to 260,000 pesos (about \$84,000), were higher than the proceeds from the sales. About 90 per cent of the serums, vaccines and endocrine preparations are dispensed gratuitously to public hospitals, welfare institutions, army and navy hospitals and so on; the remainder is sold. A considerable supply of products, sufficient not only for national needs but for emergency aid rendered to neighboring countries, is kept constantly on hand. The research activities of the institute embrace numerous fields such as the pathology of transmissible diseases of animals and man, the investigations of hitherto unknown pathogenic organisms, numerous bacteriologic and immunologic tasks, infectious diseases and improved methods of biologic preparations. New divisions were organized for the investigation of brucellosis, psittacosis, venereal lymphogranuloma and smallpox virus. The diagnostic division is to be enlarged because of the increased demands made on it by the new law requiring premarital examinations for venereal disease (THE JOURNAL, April 20, p. 1570).

Hospital Service in Buenos Aires

According to a municipal report of Buenos Aires for 1938, about 137,000 patients were received in the federal, municipal and private hospitals, 1.6 per cent more than in 1937. In the polyclinics 3,600,000 cases were handled. Cases requiring surgical intervention amounted to 99,000; 4,200,000 prescriptions were written and 600,000 laboratory tests made. The hospitals for mental diseases received 3,415 persons, lost 619 by death and restored 238 to health. The institute of radiology and physical therapy treated 173,000 patients. There were 25,000 obstetric cases; more than 20,000 children were given attention in the infant welfare stations. Five thousand liters of mother's milk was secured from fifty-four mothers, 3,000 of which was distributed without charge. More than 58,000 children received food assistance; 212,000 persons sought medical advice for tuberculosis and more than a million for venereal diseases. In the Jenner Institute some 385,000 vaccinations were performed; in the Pasteur Institute 37,000 cases of rabies were examined with 25,000 inoculations. Rabies was discovered in 134 animals.

School of Hygiene and Preventive Medicine

The name of the School of Hygiene, founded in 1938 by the university in Santiago de Chile, has been changed to School of Hygiene and Preventive Medicine. It furnishes a theoretical and practical training to workers and assistants in the field of sanitation, directs the organization and control of the schools for social service and nursing, conducts instruction

in hygiene for school teachers and students of the Institute of Pedagogy, promotes the education of the population in social and preventive measures and handles the organization and maintenance of a museum of hygiene. The positions of the head and the teaching staff of the school are appointive positions within the power of the president of the republic. The school awards diplomas in hygiene, social welfare work and nursing.

Congress of Medical Students

The first South American Congress of medical students will be held in the first half of August in Lima, Peru. It is intended to bring the medical students of the different South American countries more closely together.

Malaria Control in Brazil

The Rockefeller Foundation has made this year a grant of \$230,000 for malaria control in Brazil, exceeding its grant of \$100,000 for 1939. According to Dr. Raymond B. Fosdick, its president, the purpose is to confine the disease during the rainy season to areas already infected as the first step to its eradication. The grant of 1939 was made to combat *Anopheles gambiae*, which was introduced into Brazil a few years ago. However, the fact that control measures had been organized at a time when the rainy season had set in prevented the effective execution of the plans. In consequence a malaria epidemic broke out in which 4,000 persons had to be treated. Progress could be reported in combating the mosquitoes in the infested areas of the valleys adjoining the main rivers and in several coastal regions.

Personals

The Guggenheim Foundation has awarded a fellowship to Prof. R. L. Zwemer, of Columbia University, New York. He will conduct research studies in permeability in Buenos Aires with the physiologist Prof. B. Z. Houssay.

Dr. Carlos Valenzuela, of the University La Paz, Bolivia, has received a government fellowship for the study of carcinomas with Prof. Roffo in Buenos Aires. Valenzuela is a radiologist and will study the x-ray diagnosis and therapy of tumors.

PALESTINE

(From a Special Correspondent)

JERUSALEM, April 10, 1940.

Hormone Research Laboratory

After his return from America, Prof. Bernhard Zondek opened the Hormone Research Laboratory at the Medical School (Nathan Ratnoff Building) of the Hebrew University, Jerusalem. Investigations of antihormones and the bleeding mechanism are reported. Observations on *Microtus guentheri*, which belongs to the murides (a family of myomorph rodents of mouse-like form), a generally feared crop destroyer, showed that, unlike white mice and rats, it does not have a vaginal cycle involving cornification of the epithelium. Only after 5,000 international units of estrogen does cornification appear. The exceptional character of this animal lies in its behavior to gonadotropic substances of varied origin. Gonadotropic substances in the urine of pregnant women have no reactions. With mare serum a maturation of follicle occurs without luteinization (even with 1,000 units), with animal hypophysis both maturation of follicles and formation of corpus luteum (at 8 rat units) take place. As the *Microtus* family is widespread and is easily bred in laboratories, these murines are of particular importance as test objects in the standardization of gonadotropic substances of varied origin and composition.

Hebrew University in Jerusalem

The head of the ophthalmologic departments of the Hadassah and the chairman of the ophthalmologic department of the University Hospital, Dr. Aryeh Feigenbaum, has been appointed professor at the Hebrew University. Professor Feigenbaum is the editor of *Acta ophthalmologica orientalia*

and collaborator with the *Revista cubana de oto-neuro-oftalmiología*, Habana, and of the international *Ophthalmologia*, Basle. In 1915 he published the first textbook on ophthalmology in the Hebrew language, and in Didley and Sorsby's "Modern Trends of Ophthalmology," 1940, he has edited the chapter on ophthalmic conditions in tropical and subtropical regions. Professor Feigenbaum is the present dean of the Medical Faculty of the Hebrew University.

The Hadassah University Hospital

The physiologic-chemical department of the Hadassah Hospital and the clinical laboratories have been moved into the Medical School (Ratnoff Building). The department is headed by Prof. E. Wertheimer and is engaged in work on the importance of fat tissues in the metabolism of fat and carbohydrates. To date investigations have shown that the refilling of fat stocks in starving rats is regularly associated with the enrichment of glycogen. Animals without adrenals show no deposition of glycogen and also no addition of fat.

Lina and Nathan Strauss Health Center

At the end of 1939 Prof. W. Strauss, formerly at the Hygienic Institute of the University of Berlin, took over the management of the Health Center, which dedicates its work principally to practical hygiene. Efforts are being made to unite all similar institutes under one direction and special attention is given to the question of adaptation of European immigrants to the conditions of life, work and climate in Palestine. Investigations are proceeding as to the use of orange peels and pulp for food (bread) and a more intensive employment of nuts in order to improve the protein intake in the food of the poorer classes of the population.

New Hospitals

At Haifa the new plan for the construction of the Rothschild-Hadassah Hospital, which is to be situated midway between the Hadar Ha'armel and Mount Carmel, has been authorized. For this construction the plans of Mr. Neufeld, of Tel Aviv, have been accepted. The new building will be fitted with the most modern appurtenances and is to be built at a cost of approximately £P.40,000. At the Tel-Aviv Hadassah Hospital a new wing providing for seventy beds in the children's department has been opened and was put in charge of Prof. L. F. Mayer.

ITALY

(From Our Regular Correspondent)

May 15, 1940.

Karyoklastic Poisons

Professor Dustin, of the University of Brussels, lectured before the Istituto della Sanita pubblica of Rome, in which he said that the main property of karyoklastic poisons of the tryptoflavine group is arresting karyokinesis, which is stimulated by poisons of the arsenic-colchicum group. The speaker gives the name statmokinesis to arrested mitosis with special aspects. These types of mitosis develop in karyokinetic or prekaryokinetic zones. Arsenic and especially colchicum stimulate mitosis. Botanists found that colchicum is of great value in creating new species of useful and ornamental plants.

Lipoids of the Blood

Professor Bertola recently reported the results of experiments on the lipoids of the blood to the Società Medico-Chirurgica di Pavia. Alterations of a nephrosic type were produced in rabbits by means of a diet which was rich in proteins and fats, after which the total and fractional cholesterol and lipids of the blood increased. The amount of fats in the blood of dogs increases slightly after daily administration of small doses of allyl formate for a short time. If the treatment is administered for a long period of time the increase of fats in the blood is acute and the kidney and liver show functional

and microscopic changes. In clinical cases of hypertrophic chronic hepatitis and acute diffuse hepatitis, the amount of total and fractional lipids in the blood is increased, the lipids in the liver and sometimes those of the kidney are increased, and those in the spleen and heart do not change.

Leukemia and Banti's Disease

Professor Bossa lectured at the Accademia della Scienze mediche e chirurgiche in Naples, with a report of the results of studies on leukemia and Banti's disease. The point of coagulation for normal blood serum varies from 150.8 to 168.8 F. It reaches higher figures in leukemia. A coagulation temperature higher than normal indicates that the amount of globulins and total proteins in the blood is diminished, whereas a point of coagulation at low temperature indicates increase of globulins and total proteins in the blood. The imbalance of the metabolism of proteins in the blood serum of leukemic patients is caused partly by alteration of the water-protein ratio in the blood and by variations in the amount of blood globulins and partly by the nucleoprotein in the blood. The latter precipitates to semisaturation with ammonium sulfate, as though it were a globulin, and coagulates at a temperature higher than that for globulins. Professor Bossa also made spectroscopic studies of the hemoglobin of normal persons and of patients with leukemia. He followed the behavior of the curves of absorption in the spectral photographs. Soret's band of 4,200 angstroms, which is within the limit of visibility and corresponds to hematin, as well as the two main ultraviolet bands corresponding to globin, show slight spectrographic oscillations in normal hemoglobin and wide oscillations in the hemoglobin of patients with leukemia. In the latter the intensity of the bands is attenuated. Because the globulins in hemoglobin of normal adults are of at least two different types (Haurowitz) the speaker believes that anemia in leukemia is due to an imbalance of the globulins and that the spectrographic variations in hemoglobin show the imbalance. Hemoglobin in pernicious anemia does not show spectrographic differences in relation to normal hemoglobin.

Professor Castronuovo, in a lecture before the society, discussed a sign in the spleen in bantian syndromes, which he reported first in 1927. It consists in the presence of hard, elastic and plastic splenomegaly shown by the mark of the finger in the spleen when pressed. It is the sign of Banti's disease and bantian syndromes. It may rarely be induced in some circulatory diseases with hepatosplenic stasis with involvement of the portal circulation. He concluded that (1) splenomegaly in bantian syndromes is hard, elastic and plastic and preserves the marks of finger pressure; (2) the sign of finger mark preservation appears early in the evolution of bantian syndromes and lasts for the first and second stages of the disease, during the precirrhotic condition of the liver. The sign is of diagnostic, prognostic and therapeutic value. In association with the symptoms of the disease it shows indications of splenectomy before establishment of anemia and before development of hepatosplenic sclerosis.

Marriages

BELFORD CHRISTY BLAINE to Miss Mildred Josephine McKnight, both of Pottsville, Pa., June 26.

EDWARD G. SIEGFRIED, Harbor Beach, Mich., to Miss Lois Larson of Waseca, Minn., in May.

BENJAMIN M. KAGAN, Washington, Pa., to Miss Katherine Hamburger of Baltimore, June 2.

DOUGLAS F. HEUER JR. to Miss Raychelle Price, both of Sweetwater, Tenn., recently.

RICHARD G. HODGES, New York, to Miss Barbara Garland of Concord, N. H., June 1.

MILES GRIFFIN, Oakland, Calif., to Miss Jane Volkmann of Piedmont, June 1.

Deaths

David Riesman ☉ Philadelphia, distinguished physician, medical educator and medical historian, died in the University of Pennsylvania Hospital, June 3, aged 73, following a sudden illness.

Dr. Riesman was born in Germany, March 25, 1867, and was brought to the United States when he was a boy, receiving his preliminary education in the public schools of Portsmouth, Ohio. He received his degree of doctor of medicine from the University of Pennsylvania in 1892 and was later awarded the honorary doctor of science by the same university. He also received the honorary degree of doctor of laws from the University of Wisconsin in 1937.

After graduation he taught pathology and practiced clinical medicine for eight years. In 1900 he became professor of clinical medicine in the Philadelphia Polyclinic. In 1908 he became associated with the University of Pennsylvania School of Medicine and rose to the position of professor of clinical medicine, holding that position from 1912 to 1933, when he became emeritus professor. Since 1933 he had also been professor of history of medicine and professor of clinical medicine in the Medico-Chirurgical College, Graduate School of Medicine, University of Pennsylvania. During the World War he entered the Army Medical Corps with the rank of first lieutenant and retired as lieutenant colonel.

In organizational work Dr. Riesman was exceedingly active. He was a fellow of the American College of Physicians, of the College of Physicians of Philadelphia and of the American Association for the Advancement of Science. He had been president of the Philadelphia County Medical Society, of the Philadelphia Pathological Society, of the American Society of Medical History and of the Inter-State Post-graduate Medical Association of North America. He was also a member of the Association of American Physicians and of the American Gastro-Enterological Association. In general science, he was a member of the Franklin Institute, the Society for the History of Science, the Academy of Natural Sciences and the British Philosophical Association. He had received the Order of the Cavaliere of the Crown of Italy, returning this order to show his opposition to fascism.

Dr. Riesman was a prolific contributor to writings in the fields of pathology, medicine and medical history. With Dr. Ludvig Hektoen, he was editor of the "American Textbook of Pathology" in 1901. He wrote a "Life of Thomas Sydenham" and a work called "Medicine in the Middle Ages"; his essays were collected in book form, and he was a contributor to numerous systems and textbooks in the practice of medicine.

Among his hobbies were astronomy, archeology, atomic physics and the writings of Shakespeare.

Dr. Riesman was the first recipient of the Strittmatter award, given annually by the Philadelphia County Medical Society for the greatest service to medicine in that city.

In all his attitudes he was distinctly a liberal, tending toward profound sympathy for all liberal causes and lending his influence to their promotion.

In his death, in addition to his widow, he leaves two sons, David Jr., who is professor of law at the University of Buffalo, and John P., now an intern at the Philadelphia General Hospital, and a daughter Mary, who is a teacher in New York.

In conferring on him the degree of doctor of laws, President Dykstra of the University of Wisconsin referred to him as "a statesman in the field of medicine." In 1933 at the time of his retirement as professor of clinical medicine, the graduating class of the University of Pennsylvania presented him with a plaque on which were inscribed the words "Learned Scholar, Inspiring Teacher, Great Physician."



DAVID RIESMAN, M.D.
1867-1940

Worcester Allen Bryan ☉ Nashville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1899; assistant in medicine, 1899-1900, assistant surgeon and demonstrator of surgery from 1900 to 1907, lecturer of principles of surgery from 1902 to 1906, adjunct professor of surgery from 1906 to 1909, professor of principles of surgery from 1909 to 1911, professor of surgery and clinical surgery from 1911 to 1925 and since 1925 professor of clinical surgery at his alma mater; professor of oral surgery in the dental department of Vanderbilt University from 1902 to 1925; member of the Southern Surgical Association; fellow of the American College of Surgeons; surgeon to the Nashville General Hospital, Protestant Hospital and the Vanderbilt Hospital, Nashville, and the Watauga Sanitarium, Ridgetop; author of "Principles of Surgery"; aged 66; died, April 30, in Memphis of coronary occlusion.

Henry Johns Berkley, Baltimore; University of Maryland School of Medicine, Baltimore, 1881; member of the Medical and Chirurgical Faculty of Maryland and the American Psychiatric Association; clinical professor emeritus of psychiatry at Johns Hopkins University School of Medicine; formerly member of the board of mental hygiene of Maryland; author of "Text Book of Mental Diseases"; aged 79; died, April 5, in the Maryland General Hospital of injuries received in a fall.

Arthur Camp Stanley ☉ Washington, D. C.; George Washington University School of Medicine, Washington, 1906; entered the navy in 1908 and retired in 1910 for incapacity resulting from an incident of service, with rank of lieutenant commander; served during the World War; fellow of the American College of Surgeons; on the staff of the Garfield Memorial Hospital; aged 56; died, April 30, of hypertension, uremia and arteriosclerosis.

William A. Deerhake ☉ Waupun, Wis.; Indiana University School of Medicine, Indianapolis, 1908; acting assistant surgeon, United States Public Health Service, 1909-1910; served during the World War; connected with the Veterans Bureau from 1921 to 1926; since 1926 medical superintendent of the Central State Hospital for Insane; aged 54; died, April 10, of injuries received in an automobile accident.

Carroll Royer Baker ☉ Medical Director, Captain, U. S. Navy, Washington, D. C.; Jefferson Medical College of Philadelphia, 1909; entered the navy May 20, 1914; fellow of the American College of Surgeons and the American College of Physicians; aged 55; on the staff of the United States Naval Hospital, where he died, April 23, of cerebral thrombosis and arteriosclerosis.

John Hill Tucker ☉ Charlotte, N. C.; University of Virginia Department of Medicine, Charlottesville, 1899; fellow of the American College of Surgeons; past president of the Mecklenburg County Medical Society; on the staffs of Mercy Hospital and St. Peter's Hospital; aged 62; died, April 21, of carcinoma of the superior mediastinum.

Platt Walker Covington ☉ Salt Lake City; University of Maryland School of Medicine, Baltimore, 1908; member of the Medical Society of the State of North Carolina; western director of the International Health Division of the Rockefeller Foundation; aged 55; died, April 20, in a hospital at Baltimore of cerebral hemorrhage.

John Edward Hardman ☉ Youngstown, Ohio; College of Physicians and Surgeons, Baltimore, 1909; past president of the Mahoning County Medical Society; past president of the staff of St. Elizabeth's Hospital; aged 54; died, April 4, in the Cedars of Lebanon Hospital, Los Angeles, of nephritis and hypertension.

Henry Mateland Mills ☉ Brooklyn; Long Island College Hospital, Brooklyn, 1898; at one time clinical professor of obstetrics and gynecology at his alma mater; fellow of the American College of Surgeons; on the staff of the Kings County Hospital; aged 70; died, April 26, of myocarditis.

Michael J. Foran, Ithaca, N. Y.; Baltimore Medical College, 1902; University of Buffalo School of Medicine, 1904; member of the Medical Society of the State of New York; formerly county coroner; aged 67; died, April 5, at the Johns Hopkins Hospital, Baltimore, of myocarditis.

James Reed Davis, McKees Rocks, Pa.; University of Pittsburgh School of Medicine, 1911; member of the Medical Society of the State of Pennsylvania; on the staff of the Ohio Valley Hospital; aged 54; died, April 10, in the Mercy Hospital, Pittsburgh, of carcinoma of the bladder.

Roy Dean Russell ☉ Dodge City, Kan.; University of Pennsylvania School of Medicine, Philadelphia, 1922; fellow of the American College of Surgeons; on the staff of St. Anthony Hospital; aged 43; died, March 19, of acute endocarditis following a streptococcal infection of the leg.

Adam L. Kotz ☉ Easton, Pa.; Jefferson Medical College of Philadelphia, 1881; member of the American Society of Clinical Pathologists; emeritus chief of the laboratory of the Easton Hospital; on the staff of the Sacred Heart Hospital from 1922 to 1926; aged 84; died, March 17.

James Joseph Hagan Jr., Jersey City, N. J.; Georgetown University School of Medicine, Washington, D. C., 1936; on the staffs of the Medical Center of Jersey City and St. Francis Hospital; aged 31; died, April 2, of cardiac thrombosis and streptococcal infection of the throat.

Frederick Whitmore Harriman ☉ Montpelier, Vt.; University of Vermont College of Medicine, Burlington, 1911; fellow of the American College of Surgeons; served during the World War; on the staff of the Heaton Hospital; aged 51; died, April 22, of coronary sclerosis.

William Daniel Kelly, St. Paul; Jefferson Medical College of Philadelphia, 1887; member of the American Urological Association; aged 75; formerly on the staff of St. Joseph's Hospital, where he died, April 7, of coronary thrombosis and essential hypertension.

Ferdinand Seidl ☉ Benson, Ill.; St. Louis College of Physicians and Surgeons, 1894; formerly county coroner, mayor and member of the school board; aged 81; died, April 30, in St. Francis Hospital, Peoria, of pyelonephritis and hypertrophy of the prostate.

Arthur Davis Variell, Kennebunk Maine; Medical School of Maine, Portland, 1894; past president of the board of health of Waterbury, Conn.; aged 71; died, April 16, in Miami Beach, Fla., of cerebral embolus and hypertensive heart disease.

Philip Schuyler Doane ☉ Pasadena, Calif.; Rush Medical College, Chicago, 1895; fellow of the American College of Surgeons; aged 67; died, April 27, in the Collis P. and Howard Huntington Memorial Hospital of coronary thrombosis.

John Robert Brownell ☉ Perry, N. Y.; Chicago Homeopathic Medical College, 1899; served during the World War; health officer; aged 63; died, April 10, in the Wyoming County Community Hospital, Warsaw, of carcinoma of the cecum.

Herman Jeremiah Ballen, New York; New York Homeopathic Medical College and Flower Hospital, New York, 1916; served during the World War; aged 44; died, April 25, in a hospital at New Haven, Conn., of tuberculosis.

Milton Earl Wilson ☉ Coquille, Ore.; University of Oregon Medical School, Portland, 1924; part owner of the Coquille Hospital; aged 43; died, April 27, in a hospital at Portland of subacute bacterial endocarditis.

William Francis Hayes, Beverly, Mass.; Tufts College Medical School, Boston, 1909; member of the Massachusetts Medical Society; aged 57; died, April 4, in the Beverly Hospital of asthma, bronchitis and emphysema.

Franklin Pierce Vines, El Dorado, Ark.; Memphis (Tenn.) Hospital Medical College, 1903; member of the Arkansas Medical Society; on the staff of the Warner Brown Hospital; aged 62; died, April 29, of cerebral hemorrhage.

William Harmar Good ☉ Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; formerly demonstrator and instructor of physiology at his alma mater; aged 63; died, April 21, of a self-inflicted bullet wound.

William Henry Jenks, Pasadena, Calif.; Chicago College of Medicine and Surgery, 1913; member of the Iowa State Medical Society; served during the World War; aged 54; died, April 22, of cerebral hemorrhage.

Martin Flaherty Baneroft, San Diego, Calif.; Stanford University School of Medicine, San Francisco, 1933; member of the California Medical Association; aged 33; died, April 12, of a gunshot wound of the chest.

Byron Bowman Bobb ☉ Harrisburg, Pa.; Temple University School of Medicine, Philadelphia, 1926; aged 41; formerly on the staff of the Harrisburg Polyclinic, where he died, April 7, of intestinal obstruction.

Herbert Augustus Allen, Richmond, Va.; Howard University College of Medicine, Washington, D. C., 1912; on the staff of the Richmond Community Hospital; aged 55; died, April 30, of cerebral hemorrhage.

Francis Bernard Hunter, San Diego, Calif.; The School of Medicine of the Division of Biological Sciences of the University of Chicago, 1936; aged 28; died, April 24, in Mercy Hospital of acute leukemia.

William Oakes Hewitt ☉ Attleboro, Mass.; Harvard Medical School, Boston, 1900; formerly city health officer; aged 62; died, April 27, in the Phillips House of the Massachusetts General Hospital, Boston.

Smith Fuller Hogsett ☉ Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1906; on the staffs of St. John Hospital and the Passavant Hospital; aged 57; died, April 5, of coronary occlusion.

Richard Edwin Stoner, Cincinnati; Western Reserve University School of Medicine, Cleveland, 1937; aged 28; resident to the Cincinnati General Hospital, where he died, April 20, of cerebral hemorrhage.

Edward Marion Gramm, Philadelphia; Hahnemann Medical College of Philadelphia, 1880; formerly professor of dermatology at his alma mater; aged 80; died, April 1, of cerebral hemorrhage.

Donnell Bone Braly, Troup, Texas; University of Nashville (Tenn.) Medical Department, 1907; member of the State Medical Association of Texas; aged 63; died, April 21, of myocarditis.

Henry Costello Foster, Clear Spring, Md.; University of Maryland School of Medicine, Baltimore, 1889; aged 72; died, April 29, in the University Hospital, Baltimore, of coronary thrombosis.

Glenn Guy Towsley, Grand Rapids, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1894; aged 73; died, April 23, of coronary sclerosis and cerebral arteriosclerosis.

Frank S. Twitty, Columbia, Ala.; College of Physicians and Surgeons, Baltimore, 1893; aged 70; died, April 30, in a hospital at Dothan of cerebral hemorrhage and arteriosclerosis.

Philip Nicholson Wharton, Munising, Mich.; Northwestern University Medical School, Chicago, 1927; aged 38; died, April 21, of hemorrhage due to a severed artery of the thumb.

Osstella Fitch Blakely, Fairfield, Ill.; Barnes Medical College, St. Louis, 1908; aged 56; died, April 22, in the Good Samaritan Hospital, Vincennes, Ind., of chronic myocarditis.

Norman Baker Ervin, Gibsonburg, Ohio; University of Wooster Medical Department, Cleveland, 1881; aged 87; died, April 29, of arteriosclerosis and coronary occlusion.

David Arthur Mills ☉ Zephyrhills, Fla.; University of Michigan Homeopathic Medical School, Ann Arbor, 1912; aged 61; died, April 23, of cerebral hemorrhage.

Charles H. Erdman, Stanley, Wis.; University of Tennessee Medical Department, Nashville, 1893; aged 68; died, April 25, in the Victory Hospital of cerebral hemorrhage.

Reginald Heber Cleary, Caldwell, Ohio; Starling Medical College, Columbus, 1902; served during the World War; aged 65; died, April 27, of coronary heart disease.

Mary L. Van Meter Kelly, Inglewood, Calif.; Woman's Medical College of Pennsylvania, Philadelphia, 1884; aged 88; died, March 14, of chronic myocarditis.

Henry George Rose, Denver; Gross Medical College, Denver, 1896; served during the World War; aged 75; died, April 15, of rheumatic heart disease.

Edmund Johnson Jr., Anderson, S. C.; Leonard Medical School, Raleigh, 1910; aged 58; died, April 21, in the Anderson County Hospital of diabetes mellitus.

Rudolph Mueller, Evanston, Ill.; C. K. Ceská Universita Karlo-Ferdinandova, Prague, Bohemia, Austria, 1909; aged 54; died, March 21, of carcinoma.

Arthur E. Shappell, Van Nuys, Calif.; Keokuk (Iowa) Medical College, 1895; served during the World War; aged 71; died, March 7, of arteriosclerosis.

Solomon Hyman ☉ Los Altos, Calif.; Johns Hopkins University School of Medicine, Baltimore, 1902; aged 65; died, March 13, of coronary occlusion.

Emile R. Paillou, St. Louis; Hahnemann Medical College and Hospital of Philadelphia, 1893; aged 75; died, April 26, of hypostatic pneumonia.

Ulvus L. Russell, Los Angeles; Washington University School of Medicine, St. Louis, 1893; aged 68; died, March 13, of myocarditis.

Joseph Richard Sample, Haines City, Fla.; Lincoln (Neb.) Medical College of Cotner University, 1897; aged 73; died, March 14.

J. A. Hamilton, Decatur, Ohio; College of Physicians and Surgeons, Baltimore, 1883; aged 80; died, March 22, of heart disease.

James L. W. Young, Portland, Ore.; Missouri Medical College, St. Louis, 1871; aged 91; died, April 29, of myocarditis.

Charles Augustus Arnold ☉ Pittsburgh; Baltimore Medical College, 1902; aged 70; died, April 6, of coronary occlusion.

Correspondence

DIAGNOSIS OF ALCOHOLIC INTOXICATION

To the Editor:—The observations of Swimm, McCawley and Leake (Correspondence, *THE JOURNAL*, March 23, p. 1098) who noted appreciably high concentrations of alcohol (up to 0.15 per cent) in the blood of normal rabbits, using Heise's method, are rather surprising.

In approximately 1,600 determinations of alcohol in blood and urine (Studies in Alcohol: I. Diagnosis of Acute Alcoholic Intoxication by a Correlation of Clinical and Chemical Findings, *Am. J. M. Sc.* 196:475-487 [Oct.] 1938) of persons suspected of acute alcoholism, I noted negative results in about 400 cases using Heise's method. No substances have been found, in my experience, which yield a detectable reducing action in the blood or urine of the normal human being. The urine of approximately 200 nonalcoholic subjects was tested and gave negative results for alcohol. Blood taken from persons in full ether anesthesia also gave negative results. Furthermore, in a series of twenty volunteers to whom alcohol was administered, the fasting blood was negative for alcohol in all instances (Studies in Alcohol: II. Experimental Feeding of Alcohol to Non-alcoholic Individuals, *ibid.*, p. 487). Formaldehyde interferes but may be easily detected and removed. Patients in severe acidosis have shown positive results for alcohol in both blood and urine, but the results have never exceeded 0.03 per cent. These figures are insignificant for medicolegal interpretation.

Using Harger's method for the determination of alcohol in tissues, a more sensitive procedure, I have had results varying from 0.0009 to 0.0039 per cent of alcohol in the blood on 125 nonalcoholic persons (Studies in Alcohol: III. Relation of Alcohol Absorption to Gastric Acidity, to be published). This so-called normal blood alcohol content compares similarly with the results of other observers. In some preliminary work, it has been noted that the normal dog approximates these figures.

All these results are so low that they cannot possibly interfere with the legal interpretation of the test for alcohol. It is concluded, therefore, that either Heise's or Harger's method is entirely satisfactory for medicolegal purposes.

WALTER W. JETTER, M.D., Taunton, Mass.

WHY "REFRIGERATION"?

To the Editor:—Medical nomenclature should be simple, expressive and consistent. The current interest in lowering body temperature for therapeutic purposes by suitable cooling arrangements has resulted in newspaper headlines such as "Artificial Hibernation," "Frozen Sleep" and "Refrigeration." It is regrettable to find the repetition of such sensational titles in medical papers and in medical publications of standing. Artificial fever therapy has become generally designated under the term "hyperthermy" or "hyperpyrexia" and no one would think of speaking of the procedure as body "cooking" or "roasting" because external or internal forms of heating are applied. Hence it would appear logical for describing the reverse process of lowering the body temperature to employ the term "hypothermy." This would also tend to convey a sound conception of the physiologic process involved, which amounts only to a moderate lowering of the body temperature and can be accomplished by air cooling as well as by packing with ice.

Body cooling by applications of cold water has formed one of the standard methods of hydrotherapy for many years, while the term cryotherapy or cryotherapy has been employed principally to describe local cooling or actual tissue destruction such as by freezing with a carbon dioxide pencil or paste. The analogy of medical and surgical diathermy offers the term

surgical hypothermy or cryotherapy for describing the use of cold for local tissue destruction, while medical hypothermy could designate the use of a cold compress or an ice bag over a circumscribed body area. Hence, in summary, the term general hypothermy would appear logical to denote the lowering of body temperature by any form of general cooling, while local hypothermy, medical or surgical, would seem appropriate to denote local cooling or freezing, respectively.

RICHARD KOVACS, M.D., New York.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

CARDIAC IRREGULARITY

To the Editor:—A high school student aged 17 consulted me recently because of shortness of breath and dizziness during athletic exertion. This boy has been active in athletics in the last few years and is still rapidly growing. At present he weighs 170 pounds (77 Kg.) and measures 6 feet 5 inches (196 cm.) in height. His symptoms have certainly not been of more than one month's duration. On examination I found an absolute irregularity of the heart rhythm with a tachycardia and pulse deficit. His blood pressure was approximately 148 systolic, 100 diastolic. No other evidence of organic heart disease, such as an enlargement of the heart, murmurs or evidence of decompensation could be found. My impression is that he has an auricular fibrillation of the idiopathic type. Could his strenuous athletic activities be responsible for this? I advised bed rest and sedation in the hope that the normal rhythm would spontaneously reestablish itself. However, the boy did not cooperate well with regard to the rest regimen and after two weeks without success with home treatment I decided to hospitalize him and employ more specific therapy. For the past ten days he has been receiving quinidine sulfate 5 grains (0.3 Gm.) and strychnine one-thirtieth grain (0.002 Gm.) three times a day. As yet a persistent normal rhythm has not returned, but the pulse is quieter and apparently regular for short intervals. An electrocardiogram has not been made, since we do not have the facilities here. How long should I continue with the quinidine and strychnine? Any additional suggestions for therapy would be appreciated.

J. M. Spatz, M.D., Glasgow, Mont.

ANSWER.—From the data given one cannot definitely identify the arrhythmia. Auricular fibrillation is by far the commonest mechanism which produces this type of irregularity, but multiple premature beats and auricular flutter with varying conduction can show a similar irregular rhythm. The fact that the pulse later became apparently regular for short intervals tends to cast some doubt on the diagnosis of auricular fibrillation. In such a case an electrocardiogram would be invaluable in identifying the arrhythmia.

Auricular fibrillation has been reported to occur not infrequently in otherwise normal hearts, and heavy exertion is implicated as the exciting cause in some of these cases. It would be well, however, to search carefully for evidence of organic disease. This arrhythmia is well known to complicate rheumatic heart disease frequently, but it must be remembered that it also occurs commonly in thyrotoxicosis. Occasionally the occurrence of auricular fibrillation directs attention to the latter possibility and results in the discovery of a "latent" hyperthyroidism. The fact that the arrhythmia has persisted for twenty-four days suggests an organic etiology but is not definite proof, because "idiopathic" fibrillation rarely may persist for a long time. The cause of a blood pressure reading of 148/100 should also be investigated. At this age a chronic glomerulonephritis or a coarctation of the aorta should be especially considered. Auricular fibrillation per se does not elevate the blood pressure, although it does make measurement difficult.

Treatment may well be first directed at an attempt to convert the auricular fibrillation, if this is present, to sinus rhythm, and for this quinidine in the form of the sulfate is the drug of choice. Different regimens have been recommended, and the following is one which has proved satisfactory: Quinidine sulfate tablets 0.2 Gm. (3 grains) by mouth are employed throughout. One tablet is given the first day to test for sensitivity. On the second day one tablet is given every four hours for five doses (sometimes administration every four hours day and night is advised; however, it is usually preferable to omit the sixth dose and thus allow eight

hours of uninterrupted sleep). Each day thereafter one tablet is added to the daily total, so that six tablets are given on the third day, seven on the fourth day, and so on, until the seventh day, when ten tablets (2 Gm.) are given. This procedure is stopped when the rhythm is converted or at the end of the seventh day if the arrhythmia persists. If sinus rhythm returns, it is well to give three tablets of quinidine a day for the first few weeks, at least, to prevent recurrence. If the auricular fibrillation persists, however, a second course similar to the first may be given after a rest period of from two to three weeks, and even a third course after a like period. If the fibrillation persists after three courses, further attempts are probably of no avail. Full digitalization before, with continuance of maintenance dosage during, quinidine therapy is commonly employed. Besides being of definite value in maintaining a slow, and therefore more efficient, ventricular rate the digitalis may potentiate the action of quinidine in breaking the mechanism of auricular fibrillation. The use of strychnine in conjunction with quinidine has been recommended empirically. If the fibrillation cannot be converted to sinus rhythm, a continuous maintenance administration of digitalis is advisable to control the ventricular rate if it is rapid.

MOOTS-MCKESSON RATIO AND OPERATIVE RISK

To the Editor:—In Maingot's *Post Graduate Surgery* I find a reference to the "Moots-McKesson pressure ratio" as an index of circulatory efficiency. In the section dealing with carcinoma of the colon and rectum the statement is made that a Moots-McKesson ratio of 25 indicates that surgery will be fatal. An index of 50 is given as the optimal, while 75 or over indicates an increased risk. No details are given as to the method of determining this ratio and I do not find any references to it in any of my literature. An explanation and references to literature would be appreciated.

Thomas C. McVeagh, M.C., Honolulu, Hawaii.

ANSWER.—In 1916 Dr. Charles W. Moots presented at the annual meeting of the American Association of Obstetricians and Gynecologists a paper entitled "Observations on Blood Pressure During Operations." This was the result of work in which Dr. E. I. McKesson helped him. Moots and McKesson had formulated as a result of some years of experience in anesthesia and surgery a blood pressure ratio or index for operability. This consisted of a fraction, namely the pulse pressure divided by the diastolic pressure. Moots claimed that the relatively normal value for safety in operations lies between 25 and 75 per cent. Thus, a case in which the pulse pressure is 40 and the diastolic pressure is 80, giving a 50 per cent ratio, would be just about ideal. The pulse pressure of course is the difference between the systolic and the diastolic pressure.

Ten years later Moots wrote further on the evaluation of surgical risk, blood pressure protection and nitrous oxide-oxygen anesthesia, reemphasizing the value of his pressure ratio or index for operability (*Evaluation of Risk, Blood Pressure Protection, and Nitrous Oxide-Oxygen Anesthesia as Vital Factors in Safer Gastric Surgery*, *Brit. M. J.* 2:295 [Aug. 14] 1926; *Anesth. & Analg.* 5:298 [Dec.] 1926).

However, W. S. Sykes (*Evaluation of Operative Risk: Criticism, Anesth. & Analg.* 13:99 [May-June] 1934) published a criticism of Moots's method of evaluation of operative risk. Sykes cited several cases in which the formulas were normal but death occurred. He concluded, therefore, that there was no reliance to be placed in the formulas taken by themselves and that fifteen of twenty-four results that he studied himself were unreliable. The patients were seriously ill, however, and in general he conceded that the formula might have some value if the condition of the patient otherwise was taken into consideration.

MIGRAINE AND HISTAMINE

To the Editor:—I am interested in the use of histamine in the treatment of the migraine type of headache and would appreciate any information and references you can give me on this subject. M.D., California.

ANSWER.—No reliable reports have been found concerning the treatment of migraine with histamine (Ehrenwald, H.: *Med. Klin.* 31:943 [July] 1935). On the contrary, histamine has been shown to aggravate the condition (Brock, Samuel; O'Sullivan, Mary, and Young, David: *Am. J. M. Sc.* 188:253 [Aug.] 1934). References in textbooks to the use of histamine in migraine are apparently traditional. A few unreported instances have been noted in which histamine has relieved single attacks of migraine.

On the other hand, recent experiments have demonstrated that the mechanism of migraine and histamine headache is somewhat similar (Piekerling, G. W., and Hess, Werner: *Brit. M. J.* 2:1097 [Dec.] 1932. Clark, Dean; Hough, Heloise, and

Wolff, H. G.: *Arch. Neurol. & Psychiat.* 35:1054 [May] 1936. Graham, J. R., and Wolff, H. G., *ibid.* 39:737 [April] 1938. von Storch, T. J. C., *ibid.*, to be published). Other investigators have separated from the "migraine-like" headaches a specific syndrome (Horton, B. T.; MacLean, A. R., and Craig, W. M.: *Proc. Staff Mect., Mayo Clin.* 14:257 [April 26] 1939). This "erythromelalgia of the head" might easily be confused with migraine. The headache of this syndrome can be produced by subcutaneous injections of from 0.3 to 0.5 mg. of histamine and in 65 per cent of the cases can be relieved for from two to seventy-two weeks by desensitization with histamine. Apparently typical cases of migraine headache do not respond to histamine desensitization.

No reliable information has yet been presented concerning the part played by histaminase in the production or relief of migraine headache. The Council on Pharmacy and Chemistry has not accepted either histamine or histaminase for use in the treatment of migraine or of allergic conditions in general.

ALBUMINURIA AND HEMATURIA

To the Editor:—A white man aged 37 had severe pain in the lower dorsal vertebrae, radiating around to the front on the right side. He had three severe attacks during the past two weeks, with several lesser attacks during the day and especially on arising in the morning. Two or three years ago he had a similar attack. Each year his insurance company has given him a routine examination and on each of these three yearly examinations his urine showed heavy albumin with numerous red blood cells, with casts. My examination revealed that he weighed 116 pounds (52.6 Kg.). There was no severe tenderness anywhere and no edema of the extremities. The heart and lungs were essentially normal, the blood pressure 120 systolic, 80 diastolic, and hemoglobin 75 per cent. The urine still showed heavy albumin, many red blood cells and only occasional casts (granular and blood casts). A series of roentgenograms revealed no calculi. A retrograde pyelogram showed a normal pelvis on both sides, with an indication of an aberrant renal blood vessel supporting the upper part of the right ureter. The renal function of both kidneys was good as determined by the dye test. The blood urea nitrogen was 17.5 mg. per hundred cubic centimeters of blood. I have placed the patient on a fattening diet and he has gained 10 pounds (4.5 Kg.) in a month. During that time his urine has been about the same, his blood pressure the same, and no edema anywhere. He had two more attacks of pain, not severe at all, mainly in the right loin. What is the diagnosis? Could the aberrant blood vessel cause all this trouble or could the patient have a nephritis, perhaps a focal nephritis of three or more years' standing? I would greatly appreciate whatever help you can offer me as to diagnosis and treatment or further examination. M.D., New York.

ANSWER.—The history of albuminuria, hematuria and cylinduria for at least three years strongly suggests an active chronic diffuse glomerulonephritis in spite of the normal blood pressure and apparently good renal function. The diminished hemoglobin and possibly elevated blood urea nitrogen would fit in with this diagnosis. Determination of renal function by the urea clearance test or the fifteen minute phenolsulfonphthalein test may reveal definite impairment. Normal results would not necessarily rule out a diffuse nephritis.

Focal glomerulonephritis is best not diagnosed unless the patient has bacterial endocarditis or some other generalized infection or known bacterial focus. A duration of focal nephritis of three years or longer in the absence of an obvious systemic infection would be most unusual. Focal suppuration in the kidneys, including tuberculosis, might produce some of the symptoms shown by the patient but is apparently ruled out by the absence of pus in the urine and by the normal pyelograms. It is assumed that the patient is in good general health and has no hemorrhagic diathesis and no signs of leukemia.

The attacks of pain, however, could scarcely be explained as part of a chronic diffuse nephritis. They would fit in with pressure from an aberrant renal blood vessel. In this connection one would like to know whether on ureteral catheterization the urines from two kidneys were equally abnormal. Should the albuminuria and hematuria be limited to the right side, the diagnosis would be simple and exploratory operation indicated. The fact that both the pain and the urinary abnormality date back some three years may mean a common etiology, namely the aberrant vessel.

It is conceivable that the attacks of pain are entirely unrelated to the right kidney or ureter. They may arise from arthritis of the lower dorsal spine, from postural or other muscular strain, from gallbladder disease, from an atypical penetrating peptic ulcer or from tumors of the spinal cord. None of these need be considered seriously until the urinary tract has been ruled out as the source of pain. However, they should be eliminated by the appropriate diagnostic methods before exploratory operation is performed on the right kidney. If surgery is postponed because of the disappearance or mildness of the attacks of pain, the patient should be followed closely for any further developments.

MEASURING CIRCULATION TIME

2404

MEASURING CIRCULATION TIME

To the Editor:—I should like to inquire as to the technic and preparation of materials in the saccharin and ether tests of the circulation time. I have used dechalin but would prefer a cheaper method. Is there a relatively inexpensive apparatus to test the vital capacity of patients with heart disease? I have a water metabolism machine (Sanborn) but have not been able to work out any method of measurement.

R. Ned White, M.D., Springfield, Ma.

R. Ned White, M.D., Springfield, Ma.

ANSWER.—The usual technic is to inject a solution of 5 minims (0.3 cc.) of ether in 5 minims of salt solution into an arm vein and observe the time till the subject detects the odor of ether. This has the disadvantage of depending on subjective evidence. Also it measures only the circulation time of the right side of the heart.

Schnur and Crawford (*J. Clin. Investigation* 18:395) have suggested a method which involves filling a spirometer with a method of inhaling quickly from it after the beginning of the test.

Gubner, Schnur and Crawford (*J. Clin. Investigation* **18**:395 [July] 1939) described a method which involves filling a spirometer with carbon dioxide and inhaling quickly from it after a forcible exhalation. Time was taken from the beginning of the inhalation to the onset of a sensation of warmth over the head (subjective) or quickened respiration (objective). Results check well with the ether and cyanide methods.

Stanojevic (*Ztschr. f. Kreislaufforsch.* **30**:521 [July 15] 1938) used lobeline intravenously, from 6.03 to 0.07 mg. per kilogram. The objective end point is an involuntary cough.

The objective end point is an involuntary cough. The injection is made in an arm. The injection is made in an arm. The injection is made in an arm.

In the saccharin test 2.5 Gm. of soluble saccharin is dissolved in 2 cc. of distilled water. The injection is made in an arm vein and the end point taken when a sweet taste is detected. Stanojevic (Zitschr. f. Kreislaufforsch., 1938) gave negative results by various methods. The Company both

Warren E. Collins and the Harvard Apparatus Company both put out a spirometer of convenient design for the purpose. Any instrument supply company should be able to refer to other sources of convenient machines.

WEAKNESS AND DIZZINESS
aged 51 complains of c
of three min

WEAKNESS AND DIZZINESS

To the Editor:—A white woman aged 51 complains of extreme weakness and dizziness an assuming a sitting position of three minutes' duration. Three months ago she first noticed weakness, shortness of breath and standing, most prominent on slight exertion and on assuming a sitting or standing position after being in a prone position for some time. The physician history is negative except for an uncomplicated miscarriage twenty-one years ago and mild appendicitis followed by appendectomy, with no complications, ten years ago. The patient has been having mild hot flashes and hypomenorrhea for the last six months, the last two weeks, with bradycardia and injections of theelin given during the last two weeks, with no improvement. The extreme weakness and dizziness have been accompanied by bradycardia varying from 50 to 65. The family history is negative except that a brother died in early youth from diabetes. No other familial diseases were indicated. The patient is fairly well nourished, weighs 135 pounds (61 Kg.) and evidently is extremely weak. She complains of dizziness an assuming the sitting position. She is able to walk for short distances. However, it seems that exertion causes weakness and dizziness. She has been practically bedridden for three months. Examination of the chest reveals nothing abnormal except a bradycardia of 60, increasing to 64 an slight exertion. There are no arrhythmias, murmurs or cardiac enlargement. The chest is negative. The vagina and rectum are normal. Repeated analyses are all negative. The blood count is as follows: red blood cells 00,000, white blood cells 5,000, hemoglobin 84, 13.4 Gm. No abnormalities are seen in the size or shape of the red blood corpuscles. The assermann test was negative. The low white count with normal differential counted and runs between 5,000 and 6,000, with normal differential count. The patient has always been an active woman. She has had a emotional or financial difficulties in the last few years. Mentally she seems to be perfectly normal. An electrocardiogram reveals nothing except bradycardia and low amplitude. The patient has had four ampules of theelin in the last two weeks which has helped her hot flashes but has done little, apparently, for the extreme weakness and dizziness. I have made a diagnosis of partial heart block and have given a few doses of atropine with no results as yet. Ophthalmoscopic examination of the retina, to get any results as yet. Ophthalmoscopic examination of the retina, t should say, reveals no arteriosclerosis. The blood pressure is 140 systolic, 90 diastolic. I would appreciate any suggestions you may have to offer in this case.

Fagan N. White, M.D., Russell, Kan.

mode of action of atropine with no loss to get any results as yet. I should say, reveals no systolic, 90 diastolic. I have to offer in this case.

ANSWER.—A more accurate definition of the term "dizziness" would serve to limit the field of investigation in this case. If the dizziness is a true vertigo, the cause must be sought for in the labyrinth or the central nervous system. Brain tumor is a remote possibility. The determination of a labyrinthine vertigo is a rather highly specialized procedure, as is cerebral localization. The caloric tests, the rotational nystagmus and the other criteria that are useful in such investigations may be found in any standard textbook of neurology. The ophthalmoscopic examination should be extended to include observation as to the presence of papilledema.

If the conditions mentioned can be ruled out, the diagnosis of partial heart block is an attractive one but is difficult to defend in the presence of a normal electrocardiogram. Repetition of the electrocardiogram might prove helpful.

MINOR NOTES

A disorder of the carotid sinus mechanism certainly falls within the range of probabilities. The giddiness and weakness plus the bradycardia point in that direction. Such a disorder might result from a carotid sinus tumor or from pressure on the sinus from without. Circulatory changes in the sinus might be responsible. If the carotid sinus mechanism is at fault, the symptoms should be reproduced or greatly exaggerated by digital pressure over the sinus. Such a maneuver should be carried out with great care and preferably under electrocardiographic control.

of the myasthenias might be suspected. This seems to be the case with pressure of 140/90, but the response to the worth investigating. This

One of the myasthenias might be suspected. This seems unlikely with a blood pressure of 140/90, but the response to ephedrine or prostigmine might be worth investigating. Lastly, a menopausal neurosis must be considered. This possibility should be held in reserve until all other possible causes are eliminated.

FETAL DEATH WITH LIVER RUPTURE

FETAL DEATH WITH LIVER RUPTURE

To the Editor:—A white obese woman, aged 34, engaged my services to deliver her sixth child. Clinical examination at the fourth month of gestation was essentially negative. The antepartum course was uneventful; obstetric history was negative. (7 Kg.) in the four months she was observed. Exactly one month before she went into labor (she weighed at this time 238 pounds, or 128 Kg.) she fell down a flight of stairs with sufficient violence to sustain a mild cerebral concussion. The fetal heart was not changed directly after or in the following weeks in its rate, rhythm or intensity. Labor was not extraordinary. The first stage lasted six hours. The membranes were ruptured at full dilatation artificially, and meconium stained amniotic fluid escaped. The second stage lasted fifteen minutes and ended with the spontaneous delivery of an 8 pound 14 ounce (4,065 Gm.) male child in left acciput anterior position. The birth of the child was followed by a second gush of meconium stained amniotic fluid. There was no prolapse of the cord or winding of the cord around the neck. The child cried spontaneously but instead of turning rosy pink became peculiarly cyanosed. From the neck up it assumed a dusky hue, as if one had sprayed the child's face and neck with purple powder. The neck down it became dead white. Respirations were rapid. The gums were almost bloodless. The abdomen was rather tense, with a feeling of resistance as if a mass was present. It was felt that the child had suffered some injury, probably prenatal. The child lived for eleven hours. A blood smear done immediately after death showed almost 90 per cent nucleated red blood cells. There were no abnormal white blood cells. Autopsy, limited to the thorax and abdomen, done twenty-eight hours after death, revealed marked pallor of the muscles and hemoperitoneum. The liver was enlarged downward 3 fingerbreadths below the costal margin, and to the left it extended and abutted against the spleen. On the edge of the right lobe there was a smaller laceration covered with some organized blood clot. The cut surface of the liver was pale and anemic. The spleen showed a laceration beginning at the splenic notch and extending toward the hilus. Could such extensive lacerations have resulted from the violent fall to which the mother was subjected? If it was a prenatal event, why did the child not die in utero?

Maurice Schreiber, M.D., Brooklyn.

Maurice Schreiber, M.D., Brooklyn.

ANSWER.—It is unlikely that the trauma to which the patient was subjected a month before delivery contributed to the death of the infant. In all likelihood the delivery was responsible for the pathologic changes which led to the fetal death. Rupture of the liver with a fatal hemorrhage is not especially rare in breech deliveries, but it is exceedingly uncommon in cephalic presentations. Normal, natural delivery can result in serious and even fatal trauma to the infant.

The blood smear showing almost 90 per cent nucleated red blood cells is of interest. Normally at term few nucleated cells are present. This finding may be indicative of erythroblastosis, but one cannot make a diagnosis of this condition on a single blood smear. This condition, even though it was present, could not have contributed to the pathologic changes found at necropsy.

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IN CANAL ZONE

GASTRO-ENTERITIS IN CANAL ZONE

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To the Editor:—A highway engineer tells me that newcomers to the Panama Canal Zone suffer from some form of gastro-enteritis which is said to be caused from vegetables grown in this area. Fruit and vegetable supplies must therefore be shipped in from the United States. Is this true and, if so, what is the etiologic factor involved?

D. L. Evans, M.D., Manhattan, Kon.

at the beginning of the dry season, there is a high incidence of gastro-enteritis, the cause of which is on the Atlantic side of the canal.

D. L. Evans, M.D., Monhatten, Kon.

ANSWER.—Each year, at the beginning of the dry season, there appears in the Colon-Cristobal area on the Atlantic side of the Isthmus an epidemic of a mild type of gastro-enteritis, the cause of which has not been satisfactorily determined. A prevalent belief there is that it is caused by sewage-polluted ocean spray, brought inland by the strong trade winds of that season; steps are now being taken to relocate the sewer outfalls of those cities to deeper water in another location where it will be less affected by the winds. Other parts of the Isthmus do not have these epidemics at corresponding times. This gastro-enteritis does not affect chiefly the newcomers but occurs generally among the native population and other long-time residents of the Isthmus in that area.

There is apparently no ground for believing that the vegetables are at fault. The local Chinese gardeners supply a considerable part of the fresh vegetables eaten there, but they are by no means able to supply all, nor are some of their products, lettuce and tomatoes especially, equal in quality to those raised in the United States. For these reasons most of such products are brought in from the United States for the Canal Zone market and for the better trade in Panama and Colon. The Chinese gardens are inspected regularly and frequently by the health department and, of course, human excreta are not allowed to be used as fertilizer. Animal manure from the stables of the army and the cities is plentifully and cheaply supplied to these gardeners, and there has been no evidence that the practice is dangerous.

In the Republic of Panama, outside the Canal Zone and the terminal cities, conditions are more primitive and the water supplies are not too good; but even from these sources the local population apparently receives relatively few cases of infection. Fruits from the interior are freely eaten, and the local citrus fruits, papayas, pineapples and mangoes are highly esteemed. Of course, other fruits that are not grown in Panama are brought from the United States, solely because of the demand for them.

HEMATURIA AND PURPURA IN INFECTIOUS MONONUCLEOSIS

To the Editor:—A man aged 25 complained of a feeling of lassitude and sleepiness two weeks before admission to the hospital. Several days later he complained of generalized aching, which was treated for "grip." These complaints continued unabated along with increased perspiration and slight chills, when suddenly he passed bloody urine and simultaneously broke out with small pinpoint purpuric spots in the skin and the mucous membranes. A moderate generalized adenopathy, most marked in the posterior triangle of the neck, and a palpable spleen were found and the patient was sent to the hospital with a provisional diagnosis of acute leukemia. Physical examination revealed no further abnormalities. On admission the urine was loaded with red blood cells and the albumin was 4 plus. Blood examination revealed hemoglobin 84 per cent, red blood cells 4,330,000, white blood cells 16,400, polymorphonuclear leukocytes 6 per cent, small lymphocytes 77 per cent, large lymphocytes 17 per cent. The lymphocytes did not appear normal although no definite young forms were seen. The next day examination revealed hemoglobin 87 per cent, red blood cells 4,640,000, white blood cells 20,000, platelets, 4,640, polymorphonuclears 6 per cent, small lymphocytes 88 per cent, large lymphocytes 6 per cent. Agglutination tests for paratyphoid A and B, *Brucella abortus* and *Bacillus proteus* were negative. The blood culture was negative. The bleeding time was one minute, the coagulation time five minutes. On the following day the white blood count was 12,200, with polymorphonuclears 12 per cent, small lymphocytes 84 per cent, large lymphocytes 4 per cent. The basal metabolic rate was plus 11. The lymphocytes seemed more normal in appearance. Two days later an agglutination test for infectious mononucleosis was done and was positive up to 1:512. The platelets were 90,000, white blood count 9,800 and the Kline 1 plus. The urine was clear. The final diagnosis was infectious mononucleosis. The clinical condition and laboratory studies tend toward improvement although further platelet counts have not as yet been done. The glands are receding and the spleen is no longer palpable. The point in question is the cause of the severe drop in platelets. Could it be explained as a secondary thrombocytopenic purpura due to a severe infection? Have any other cases of infectious mononucleosis been reported in which purpura developed?

Lawrence B. Lazarus, M.D., Fairview, Ohio.

ANSWER:—The occurrence of thrombocytopenia in infectious mononucleosis has received little attention in the literature. In those cases in which the platelets have been carefully observed and recorded they have been found to be normal. Hematuria and purpuric manifestations in the skin occur infrequently as a manifestation of this disease, but unfortunately the platelets are not mentioned in such cases. On theoretical grounds a decrease in the platelets might occur as a direct result of the disease, especially since the granulocytes are occasionally reduced to a low level. Apparently no cases similar to this one have been reported.

LIPOCAIC FOR PSORIASIS

To the Editor:—A recent newspaper article referred to a new hormone treatment for psoriasis which was reported by Dr. Lester R. Dragstedt at the Federated Biological Societies. Can you give me any information on the subject?

M.D., Texas.

To the Editor:—A patient of mine brought me a newspaper clipping referring to the treatment of psoriasis with so-called lipocaic. What is the present opinion of this treatment and can you give me any references?

M.D., Kansas.

ANSWER:—Lipocaic is the name given by Dragstedt and his co-workers to a substance which, they report, may be a new pancreatic hormone concerned in some way with the normal transport and utilization of fat and which they obtained in an alcoholic extract (insulin-enzyme free) of the gland; the properties and uses of lipocaic are still in the stage of experimental

investigation. Although the use of this substance in psoriasis has been reported to be encouraging, it is not commercially available as yet and has not been licensed for distribution by the Food and Drug Administration nor has it been accepted by the Council on Pharmacy and Chemistry. A list of references follows:

- van Prohaska, John; Dragstedt, L. R., and Harms, H. P.: The Relation of Pancreatic Juice to the Fatty Infiltration and Degeneration of the Liver in the Depancreatized Dog, *Am. J. Physiol.* **117**:166 (Sept.) 1936.
Harms, H. P.; van Prohaska, John, and Dragstedt, L. R.: The Relation of Pancreatic Juice to Pancreatic Diabetes, *ibid.* **117**:160 (Sept.) 1936.
Dragstedt, L. R., van Prohaska, John and Harms, H. P.: Observations on a Substance in Pancreas (A Fat Metabolizing Hormone) Which Permits Survival and Prevents Liver Changes in Depancreatized Dogs, *ibid.* **117**:175 (Sept.) 1936.
Goodpasture, W. C.; Vermeulen, Cornelius; Donovan, P. B., and Dragstedt, L. R.: The Bromsulphalein Liver Function as a Method of Assay of Lipocaic, *ibid.* **124**:642 (Dec.) 1938.
Dragstedt, L. R.: Lipocaic, A New Pancreas Hormone, *Northwest Med.* **37**:33 (Feb.) 1938.
Stewart, C. D.; Clark, D. E.; Dragstedt, L. R., and Becker, S. W.: The Experimental Use of Lipocaic in the Treatment of Psoriasis, *J. Invest. Dermat.* **2**:219 (Aug.) 1939.
Dragstedt, L. R.; Donovan, P. B.; Clark, D. E.; Goodpasture, W. C., and Vermeulen, Cornelius: The Relation of Lipocaic to the Blood and Liver Lipids of Depancreatized Dogs, *Am. J. Physiol.* **127**:755 (Nov.) 1939.
Dragstedt, L. R.; Clark, D. E., and Vermeulen, Cornelius: The Significance of Lipocaic in Surgery, *Ann. Surg.* **110**:907 (Nov.) 1939.
Dragstedt, L. R.; Vermeulen, Cornelius; Goodpasture, W. C.; Donovan, P. B., and Geer, W. A.: Lipocaic and Fatty Infiltration of the Liver in Pancreatic Diabetes, *Arch. Int. Med.* **64**:1017 (Nov.) 1939.
Dragstedt, L. R.: The Present Status of Lipocaic, *THE JOURNAL*, Jan. 6, 1940, p. 29.

EYE INJURY FROM RUBBING ALCOHOL

To the Editor:—Will you please give me your opinion as to possible injury to the eye from the use of rubbing alcohol composed of a specially denatured alcohol No. 23-H, sucrose octa-acetate, methyl ionone, ionone ketone, and oil of wintergreen, synthetic, U. S. P. The specially denatured alcohol No. 23-H is denatured under government supervision as follows: To each 100 gallons of ethyl alcohol 90 proof is added 8 gallons of acetone and 1½ gallons of methyl isobutyl ketone. A patient at one of the local hospitals alleges injury to the eye from rubbing alcohol, claiming that it induced glaucoma and chronic conjunctivitis of the lids, which resembles trachoma. I am unable to give at this time the exact amount of the chemicals listed, but it would be in the proportion used in rubbing alcohol, and mostly for the odor. I have been asked by the insurance company to give my opinion and would be glad if you could assist me to arrive at the conclusion as to how much injury could be caused by chemicals used in this way and in the probable proportions found in rubbing alcohol.

M.D., California.

ANSWER:—It is somewhat difficult to answer the inquiry concerning the possible injury to the eye from the use of rubbing alcohol without knowing all the details. The quantity of the material in the eye together with the length of time which it remained in the conjunctival sac has a great deal to do with just how much injury might occur. It is definitely known that with rubbing alcohol, which is about a 70 per cent absolute ethyl alcohol by volume, the epithelium of the conjunctiva and cornea may be entirely denuded. If the solution is allowed to remain in the eye after such change has taken place there may be actual fixation of corneal cells in the stroma. With the burning sensation which this solution causes in the eye it seems reasonable to believe that attempts would be made to flush the solution out of the eye immediately. This in itself would tend to prevent any serious consequences. It would seem that the claim that such a solution caused glaucoma and chronic conjunctivitis would be most difficult of proof.

MASSAGE

To the Editor:—Can you tell me where I can obtain information relative to the methods of massage used in relieving pain in the back?

M.D., Michigan.

ANSWER:—It is suggested that for detailed information the following books should be consulted:

- Bankart, A. S. B.: *Manipulative Surgery*, London, Constable & Co., Ltd., 1932.
Mennell, J. B.: *Massage, Its Principles and Practice*, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1920.
Barker, L. F.: *Backache*, Philadelphia, J. B. Lippincott Company, 1931.
Mennell, J. B.: *Backache*, Philadelphia, P. Blakiston's Son & Co., 1931.
Mennell, J. B.: *The Science and Art of Joint Manipulation*, Philadelphia, P. Blakiston's Son & Co., 1939.

Particular reference should be made to chapter 1 of Mennell's textbook on "The Science and Art of Joint Manipulation," in which it is stated: "Unfortunately the unqualified bone-setter attributed his cures, when they occurred, to phenomena which the qualified practitioner knew could only exist in the imagina-

tion. Some spoke of dislocation where no dislocation was possible, others of a 'little bone' being out of place, in a position where there was no 'little bone,' as anatomical knowledge could prove. Then the untenable claim was made that such imaginary dislocations and displacements had been reduced or restored by manipulation. The advent of x-ray examination has proved that, in the vast majority of cases in which claims of this type were made, no dislocation, as understood by the medical practitioner, was in fact present."

PROBABLE ARTERIOSCLEROTIC EPILEPSY

To the Editor:—A man aged 55, a plumber, has had "fainting spells" for about eighteen months with no other symptoms or complaints. Lately the spells have become associated with dyspnea, belching and bilateral tonic contractions of the legs and arms. The blood and spinal fluid Kahn reaction and the calloidal gold curve are negative. There is a marked arteriosclerosis with a systolic apical murmur. The eyegrounds are normal except for sclerotic. The pupils are small, round and fixed and do not react to light but do react in accommodation. The teeth are poor, with several abscesses. The tongue is moderately coated, with no deviation. During attacks the eyes are deviated to right and upward with same reflexes in the toes are normal. The tendon reflexes are normal and phrenic reflexes in the toes are normal. The attacks have been more frequent equal. Sensation appears normal. The attacks have been more frequent in the last two weeks after some improvement under vitamin and phenobarbital, atal sodium 5 grains (0.3 Gm.) or dilantin sodium. Attacks came on occasionally in sleep and have ceased to be same family by phenobarbital, atal sodium 5 grains and fullness in the ears. The patient's mental background is poor and there appear to be some family difficulties. The wife is considered by the patient to be unfaithful and he appears to have a conflict of some sort about his son, who is 5 years old and whom he admires. His wife says he is afraid he will die in one of these attacks and leave the boy. While the attacks have the appearance of hysteria, he has fallen several times in water filled ditches and on several occasions cut his lip or face. I would appreciate any suggestions as to further diagnosis and treatment.

C. W. Atherton, M.D., Marshall, Ill.

ANSWER.—The patient probably has an organic convulsive state syndrome. Because of the generalized arteriosclerosis and retinal sclerosis it is probable that he has arteriosclerotic epilepsy. He should have a detailed and competent neurologic examination with a visual field study every 15 degrees and an x-ray examination of the skull. In this way it will be possible to determine the presence of any abnormal neurologic signs as well as any abnormal skull markings which may make for a diagnosis of a cerebral neoplasm. If there are any abnormal neurologic or x-ray signs and if there is no elevation of blood pressure it is suggested that the patient have an encephalogram made. Are there any signs of lead poisoning? All abscessed teeth should be removed. If no other evidence of organic disease of the brain is found, the following treatment is suggested: 1.3 Gm. (20 grains) of sodium bromide three times daily, to be increased to 1.6 Gm. (25 grains) three times daily if attacks continue to occur. He should be kept on this medication for several years. He should not be permitted to drive a car, go in swimming or climb any heights.

TREATMENT OF SNAKE BITE

To the Editor:—Would you please furnish information regarding the most modern methods of snake bite treatment with particular reference to suction devices to be applied to the bite after incision and antivenom therapy. I am situated in a tent camp on Hilton Head Island, S. C., where the prevalent snakes are rattlesnakes (diamond back), copperheads and moccasins. We do not have a powerful enough electric generating plant to use any electric suction devices. Is there any advantage in using such devices as suction cups, which were formerly used in the "cupping" treatment of inflammation? Marshall Cohen, M.D., Parris Island, S. C.

ANSWER.—A brief statement on modern methods of snake bite treatment must necessarily omit many qualifications and therefore be inadequate. However, the treatment of snake bite is in general of two kinds: (1) local, designed to delay the spread of venom from the site of the bite to vital organs and to remove as much as possible before it is absorbed, and (2) general, designed to neutralize the absorbed venom and to prevent or minimize its effects.

Under local treatment the use of a tourniquet is still advised, although recent investigation raises the question as to whether it really does much good. Short, deep incisions over the fang marks and multiple incisions through the skin around the edge of the swelling are also advised, supplemented by application of suction. There are several suction devices on the market. Local treatment having been initiated, specific antivenom therapy is undertaken to combat the general effects of the venom in the body. Antivenin is injected intramuscularly or subcutaneously above the tourniquet. If an ample supply of anti-

venin is at hand, part may be given near the bite to help combat local effects. Antivenin should be given as soon as possible after the bite. The longer the time elapsing before injection is given, the larger the dose should be.

The Council on Pharmacy and Chemistry has accepted a North American (Crotalus) and a Tropical American (Bothrops) brand of antitoxin for inclusion in N. N. R. but recognizes that the total dose administered in each case is less likely to prove beneficial in amounts less than 50 cc. In general, individual doses of 10 cc. each are administered until a satisfactory response is obtained. Children usually require a greater total dose than adults (Ditmars, R. L.: Snake Venom Poisoning, in Textbook of Medicine by R. L. Cecil, Philadelphia, W. B. Saunders Company, 1937).

Of general measures apart from antivenin, sedatives such as morphine sulfate to relieve severe pain are indicated. With collapse, stimulants are indicated. Alcohol is regarded by many as injurious, as it hastens the absorption of venom. Infusion of large amounts of physiologic solution of sodium chloride or, better still, blood transfusion will bring great relief and is often life saving in borderline cases.

SIXTH LUMBAR VERTEBRA

To the Editor:—In Queries and Minor Notes, April 6, 1940, on page 1395 of The Journal, appears a question concerning the frequency of occurrence of six lumbar vertebrae, and only eleven pairs of ribs, submitted by "M.D., New Jersey." An answer of "no available statistics" is given. Martin's Lehrbuch der Anthropologie, 1928, page 1076, presents the following regarding the incidence of eleven pairs of ribs:

Number of Cadavers	Stack	Incidence of 11 Pairs of Ribs, per Cent	Investigator
524	European	0.5	Fischel
680	European	0.3	Robl
908	European	0.9	Bardeen
181	Japanese	1.1	Hasebe

In an article by Prof. Mildred Tratter of this department (The Vertebral Column in Whites and in American Negroes, Am. J. Phys. Anthropol. 13:95) the incidence of six lumbar vertebrae is given as 6.8 per cent, or thirteen times, in 189 skeletons investigated from the skeletal collection of the Washington University Department of Anatomy.

Raymond R. Lanier, Ph.D., St. Louis.

To the Editor:—In your reply to the question regarding anomalies of the vertebral column in The Journal, April 6, 1940, page 1395, your correspondent should be advised to consult the following article, which contains the requested statistics, a full bibliography on the subject: Lanier, Raymond R., Jr.: The Presacral Vertebrae of American White and Negro Males, Am. J. Phys. Anthropol. 25:341-420 (Oct.-Dec.), 1939. According to the figures contained in this article, from two to four white males out of every hundred may show an extra thoracolumbar vertebra, with or without ribs. Among Negro males from 5 to 7 per cent will show this anomaly. On the other hand, from 1 to 3 per cent of white males and from 2 to 5 per cent of Negro males may lack one of the usual number of thoracolumbar vertebrae. Interestingly enough, if your correspondent were to examine Eskimos he would probably find 12 per cent with an extra thoracolumbar vertebra and none with less than the usual number. Since one of the most distinguishing features of a thoracic vertebra is the facets for articulation with the ribs, the absence of ribs, and consequently also the absence of costal facets on the transitional thoracolumbar vertebra, for all practical purposes makes it a lumbar vertebra.

T. D. Stewart, M.D., Washington, D.C.

INJURY TO NERVES AT ELBOW

To the Editor:—In Queries and Minor Notes, Jan. 27, 1940, page 346, a physician wrote concerning a patient having flexure of the fourth and fifth digits, atrophy of the dorsal interossei, and tenderness in the region of the medial epicondyle. The answer given was that the patient apparently suffered an injury to the radial nerve. According to Gray's Anatomy, on page 459, and verified by dissections, the fourth and fifth digits are flexed at the metacarpophalangeal joints and extended at the interphalangeal joints by the lumbrical muscles, which are supplied by the ulnar nerve. The dorsal interossei are also supplied by the ulnar nerve, which lies behind the medial epicondyle. The radial nerve, in the elbow area, lies in the cubital fossa and could not possibly have been injured in knocking the elbow. In short, the clinical picture is typical of an ulnar nerve injury at the medial epicondyle. John A. DiFiore, Omaha.

HERPES ZOSTER OF SUPRA-ORBITAL DIVISION OF FIFTH NERVE

To the Editor:—In Queries and Minor Notes in The Journal, March 9, 1940, there was an inquiry about the treatment of herpes zoster of the supra-orbital division of the fifth nerve. Of the treatments mentioned, one which I feel would be especially applicable in this condition has been omitted. The treatment I have in mind is the one for trifacial neuralgia advocated by Dr. Benjamin Ulanski of Philadelphia in which he utilizes the rapid sinusoidal current and which would be beneficial in this disorder. From my observation I know he has been successful in a large number of cases. The treatment appears to be simple and efficient, and leaves no after-effects.

Leon Felderman, M.D., Philadelphia.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in *THE JOURNAL*, June 8, page 2325.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, June 17-19. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: December 1940. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. October 21. Applications must be on file by September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral*. Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDICS: *Written*. New Orleans, January 1941. Final date: November 15. Sec., Dr. Fremont A. Chandler, 61

AMERICAN BOARD OF PEDIATRICS: 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF SURGERY: *Oral*. Part II. Chicago, June 18-19. *Written*. Part I. Various centers, October 21. Final date for filing application is September 15. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

Colorado January Report

Dr. Harvey W. Snyder, secretary, Colorado State Board of Medical Examiners, reports the written examination held at Denver, Jan. 3-5, 1940. The examination covered eight subjects and included sixty-eight questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists.....	(1938)		80
Creighton University School of Medicine.....	(1939)		81
Osteopath *			76

Three physicians were licensed by endorsement on January 2. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Kansas School of Medicine.....	(1933)	N. B. M. Ex.	
Tufts College Medical School.....	(1931)	Maine	
University of Tennessee College of Medicine.....	(1935)	Tennessee	

* Examined in medicine and surgery.

Hawaii January Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, Territory of Hawaii, reports the written examination held at Honolulu, Jan. 8-11, 1940. The examination covered ten subjects and included eighty questions. An average of 75 per cent was required to pass. Two candidates were examined, both of whom passed. Two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of California Medical School.....	(1936)		90
McGill University Faculty of Medicine.....	(1938)		86.1

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard Medical School.....	(1934), (1937)	N. B. M. Ex.	

Maine March Examination

Dr. Adam P. Leighton, secretary, Maine Board of Registration of Medicine, reports the written examination held at Portland, March 12-13, 1940. The examination covered ten subjects and included 100 questions. An average of 75 per cent was required to pass. Fifteen candidates were examined, thirteen of whom passed and two failed. Four physicians were licensed by reciprocity and two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
The School of Medicine of the Division of Biological Sciences	(1938)		83
Boston University School of Medicine.....	(1939)		81
Harvard Medical School.....	(1933) 82, (1935)		81

Tufts College Medical School.....	(1938) 82, (1939)	80, 85
University of Rochester School of Medicine.....	(1938)	84
Hahnemann Medical College and Hospital of Philadelphia.....	(1939)	80
McGill University Faculty of Medicine.....	(1939)	78
Ludwig-Maximilians-Universität Medizinische Fakultät, München	(1911)	77
Rheinische Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn	(1933)	75
Universität Zürich Medizinische Fakultät.....	(1938)	81

School	FAILED	Year Grad.	Number Failed
Tufts College Medical School.....	(1932)		1
Georg-August-Universität Medizinische Fakultät, Göttingen	(1924)		1

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Tufts College Medical School.....	(1935)	New Hamp.,	
University of Rochester School of Medicine.....	(1939)		Ohio
Jefferson Medical College of Philadelphia.....	(1937)		Penna.

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Rush Medical College.....	(1938)	N. B. M. Ex.	
Boston University School of Medicine.....	(1937)	N. B. M. Ex.	

Rhode Island January Examination

Dr. Robert M. Lord, secretary, Rhode Island State Board of Examiners in Medicine, reports the written examination held at Providence, Jan. 4-5, 1940. The examination covered twelve subjects and included seventy-five questions. An average of 80 per cent was required to pass. Six candidates were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine.....			86
University of Buffalo School of Medicine.....			84.1
University of Oklahoma School of Medicine.....			91.1
University of Toronto Faculty of Medicine.....	(1938) 89.6		84.9

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Harvard Medical School.....	(1934)	N. B. M. Ex.	

South Dakota January Examination

Dr. J. F. D. Cook, director, Medical Licensure, State Board of Health, reports the written examination held at Pierre, Jan. 16-17, 1940. The examination covered thirteen subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. One physician was licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Rush Medical College.....	(1938)	84.7, 88.8	
University of Manitoba Faculty of Medicine.....	(1936)	85.8	

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
University of Minnesota Medical School.....	(1935)	N. B. M. Ex.	

West Virginia March Examination

Dr. Arthur E. McClue, secretary, Public Health Council of West Virginia, reports the oral and written examination held at Charleston, March 4-6, 1940. The examination covered eleven subjects and included 110 questions. An average of 80 per cent was required to pass. Five candidates were examined, all of whom passed. Seventeen physicians were licensed by reciprocity and two physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
St. Louis University School of Medicine.....	(1930)		88.8
Cornell University Medical College.....	(1923) 87.5, (1937)		88
Medical College of the State of South Carolina.....	(1933)		87.4
Medical College of Virginia.....	(1937)		86.9

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Kansas School of Medicine.....	(1923)		Kansas
University of Louisville School of Medicine.....	(1935), (1938)		Kentucky
University of Michigan Medical School.....	(1938)		Michigan
St. Louis University School of Medicine.....	(1938)		Tennessee
Washington University School of Medicine.....	(1934)		Missouri
University of Nebraska College of Medicine.....	(1935)		Nebraska
University of Rochester School of Medicine.....	(1935)		Penna.
Ohio State University College of Medicine.....	(1936)		Ohio
University of Cincinnati College of Medicine.....	(1937)		Ohio
Hahnemann Medical College and Hospital of Philadelphia	(1938)		Penna.

University of Pennsylvania School of Medicine.....	(1928)	Penna.
Meharry Medical College.....	(1932), (1937)	Tennessee
University of Tennessee College of Medicine.....	(1933), (1938)	Tennessee
Vanderbilt University School of Medicine.....	(1935)	Tennessee

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad. of
University of Buffalo School of Medicine.....	(1934)	N. B. M. Ex.
Duke University School of Medicine.....	(1934)	N. B. M. Ex.

Book Notices

Orthopedic Operations: Indications, Technique and End Results. By Arthur Steindler, M.D., F.A.C.S., Professor of Orthopedic Surgery, The State University of Iowa, Iowa City, Iowa. Cloth. Price, \$9. Pp. 766, with 322 illustrations. Springfield, Illinois, & Baltimore: Charles C. Thomas, 1940.

To orthopedic surgeons, this is one of the most welcome books that has appeared in English. Steindler is generally recognized to be one of the leaders of orthopedic surgery in the United States, learned, conscientious and trustworthy. His diagnostic ability, his clear interpretation of indications, his excellent surgical technic, his mature and careful judgment and his truthfulness in stating his end results are conceded and widely praised. Although the book is entitled "Orthopedic Operations," it contains much more than the title indicates, representing an experience of thirty-five years, limited to orthopedic deformities and diseases.

The book is divided into three parts: (1) The indications for various operations, (2) the technic of such operations and (3) the end results following the operations. The author discusses the plans and principles of procedure and the technic of execution and he presents his final judgment not on the operation but on the results. Many operative procedures have been omitted, but only because of mature judgment based on experience.

Steindler establishes the four following principles as guides in evaluating operative procedures:

1. Is the operation rational from the physiologic and mechanical points of view?
2. Does experimental evidence substantiate the expectations of regeneration and repair that are placed in the operation?
3. Is the operative technic consistent with recognized experimental or empirical observations?
4. Are reliable statistics available to justify the procedure, in view of the definite end results?

The first part of the book deals with general surgical facts and representative approaches to general operations. Next come the operative procedures on the structures of the motor and locomotor system, and third the precise clinical situations in which these operations should be applied. The author has compiled an enormous amount of data, a large number of appropriate photographs and other types of illustrations. He has had a number of excellent assistants such as Waring, Rublin, Milgram, Kulowski, Freund and Luck; the advantage of the large experiences of his colleagues in the departments of the University of Iowa and a close and prolonged association with Professor Prentiss in the department of anatomy of the university.

The chapter on the biology of functional restoration is excellent. Special surgical risks are discussed from the point of view of constitutional and local complications. The section on choice of anesthesia is good.

The various sections on tendons make a classic monograph in themselves. The author describes Chandler's operation for transplantation of the patellar tendon but does not give the latest modified technic. There is a section on operative indications and end results in chronic arthritis and another on disabilities due to nerve disorders. Steindler also presents the operative indications in the various types of bone tumors and tumors of the soft tissues, using the diagnostic chart of Geschickter and Copeland.

Some of the most carefully thought out chapters concern poliomyelitis, spastic paralysis, congenital deformities, scoliosis, traumatic lesions, back conditions and tuberculosis. This book is a mine of material based on a wealth of experience and extensive knowledge. The medical profession is fortunate in having a work so scholarly in its development and one which could come only from such a rare combination of knowledge with a talent for the correlation of vast material. Certainly, this book is one which must be on every orthopedic surgeon's desk.

Hospital Public Relations. By Alden B. Mills. Cloth. Price, \$3.75. Pp. 361, with 16 illustrations. Chicago: Physicians' Record Company, 1939.

At last the much neglected field of public relations for hospitals has been charted. This volume should be studied carefully by every hospital trustee and administrator. Mills has made a distinct contribution not only to the field of hospital administration but to the advancements being made in providing hospital and medical care to the American people. This book will provide the alert trustee and administrator with workable plans for making the public better understand their hospital and should arouse those who have been less observing of modern trends and needs to an awareness of the role public opinion will assume in the future of their institutions.

Mills defines a public relations program, as the term is used in his book, to mean one that "is a conscious, sincere, directed endeavor to create and strengthen contacts which contribute to the development of mutual understanding, good will and respect between an institution (or business) and its public."

The book is divided into two sections. The first one, dealing with general considerations, discusses such subjects as the influencing of public opinion, the principles of public relations, what constitutes good hospital service, various phases of the problem of cost to the patient, and where the responsibility rests for a public relations program. In the second section the application of methods is described. This ranges from personal contacts with hospital personnel and their part in the program to expositional methods such as annual reports, house magazines, letters, pamphlets, bound books, newspapers, magazines and visual and auditory technics, including exhibits, motion pictures, dramas, pageants, public meetings and the radio. Fund raising campaigns, joint public relations programs with various agencies associated with the hospital field and a discussion of the finances of a public relations program also are included in this section.

The chapter on newspapers and magazines deserves the careful study of all hospital administrators, whether or not they have or contemplate a formal public relations program. Mills's discussion of how to get along with the press is sound and offers advice that can well be heeded by all persons who have, or should have, any contacts with newspapers. A valuable feature of the book is the five appendixes dealing with how to evaluate quality in hospitals, the function of a woman's auxiliary, the policy on fund solicitations by institutions, giving information to the press, and approved motion pictures. Throughout the book are valuable examples of how various hospitals and organizations in or allied to the hospital field have approached and solved some of their public relations problems. Of particular interest are the outlines of some of the public relations activities of the hospital and medical associations and how they can be correlated with individual hospital programs. An index makes instantly available the wealth of data the book contains.

The Specific Therapy of the Pneumonias. By Jesse G. M. Bullowa, M.D., Clinical Professor of Medicine, New York University College of Medicine, New York, Beaumont Lecturer for 1939. Reprinted from The Journal of the Michigan State Medical Society, July-August, 1939. Cloth. Price, \$1. Pp. 80, with illustrations. Detroit: Lectureship Foundation Committee of the Wayne County Medical Society, 1939.

This little volume contains the Beaumont Lecture delivered before the Wayne County Medical Society on Feb. 20, 1939. It is divided into two parts: first "The Choice of a Remedy" and second "Serum Therapy of the Pneumonias."

In part I the author reviews the difficulties of evaluating new therapies in the pneumonias. A large variety of therapeutic agents—quinine, ethylhydrocupreine, specific and nonspecific vaccines, diathermy, x-rays, deuteroproteose (Brooks) and pneumothorax, each of which in turn has been heralded in recent years as a panacea in the treatment of pneumonia, are noted as illustrations of the extreme caution which must be exercised in evaluating these remedies. Many of the pitfalls in the clinical evaluation of pneumonia therapy are revealed. Emphasis is placed on the importance of presenting the necessary basic data on which mortality in pneumonia depends. These would include the etiologic agent and the serologic "type" where the pneumococcus is involved, the results of blood cultures, the age of the patients, the stage of the disease when treatment is begun, and so on. The difficulty of carrying over the results of test tube or animal experimentation to the therapy in human cases is also illustrated by well chosen examples.

The lecture was delivered during the time when the interest of the medical profession and of the lay public was sharply focused on sulfapyridine. Studies which Osgood, in collaboration with Bullock, carried out with bone marrow cultures had indicated that the combination of specific serum and sulfapyridine was definitely superior to either of these agents used separately. The author's clinical data at the time covered less than half a year's observations on the use of this drug, whereas his experience with specific serums extended over many years. Nevertheless the striking effect of sulfapyridine treatment of the pneumococcal pneumonias is easily discernible.

All of this forms a background for a discussion of the relative merits of specific serums and sulfapyridine used individually or in combination. The views expressed in this lecture are sound and, as stated in the preface, were still held by the author when the lecture was published at the end of the following summer. The experience acquired since that time may require a slight change in emphasis but no essential deviations from the conclusions reached.

Part II contains a clear, concise, practical and authoritative exposition of specific serum therapy. This section is the more important one because of the author's extensive experience in this field and because, with the attention of the profession focused on chemotherapy, this important phase of the treatment of the pneumonias is only too easily neglected—to the detriment of a good many patients.

The volume is well bound and clearly printed. It contains a number of good photomicrographs of Osgood's bone marrow preparations illustrating the action of serum and sulfapyridine. Numerous temperature charts are also included to illustrate the good clinical results obtained with these agents, as well as some of the failures.

Lehrbuch und Atlas der Haut- und Geschlechtskrankheiten. Von Dr. Karl Ziegler. In zwei Bänden—Textband und Tafelband. Fifth edition. Cloth. Price, 60 marks per set. Pp. 709, with 172 illustrations; 196 plates containing 378 colored illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1939.

The work consists of two volumes, one containing the textbook and another containing colored reproductions of wax models. The first volume is divided into the two main subjects cutaneous diseases and venereal diseases. In the section on cutaneous diseases a general discussion including normal anatomy, physiology, general pathology, general diagnosis and treatment is followed by the individual diseases. The manner of description is clear and therefore easily understandable and interesting. This part is arranged for teaching purposes into twenty-one groups which Ziegler states may not be satisfactory from a scientific point of view. This would, however, be true with regard to any classification as long as our knowledge of so many conditions is incomplete. The groups are disturbances of keratinization, disturbances of the distribution of pigment, disturbances of the vascular system of the skin, pruritic dermatoses, eczemas, the group containing psoriasis and lichen ruber planus, diseases involving mainly the corium, the group of seborrheic dermatoses and the general diseases of the hair follicles and disturbed function and diseases of the sweat glands, diseases of the hair and nails, tumors of the skin, diseases following thermic, mechanical, chemical and actinic agents, toxicodermas, animal parasites, fungous diseases of the skin, diseases caused by protozoa, filtrable and not yet satisfactorily investigated microbes, groups of the leukemias and of the mycosis fungoides, cutaneous diseases due to pus producing microbes, atrophizing chronic inflammations of the skin of unknown cause, and infectious (microbic) granulomas of the skin. The description is confined to what seemed necessary to the author, discussion and more detailed literature being avoided. Thus we find disputable opinions of the author, as with Boeck's sarcoid, lupus perniosis and granuloma annulare, without a discussion of other points of view.

The venereal diseases are also adequately described: syphilis (general cause, syphilis organism and experimental syphilis, immunity in syphilis, transmission of syphilis, character and course in the different stages, variations and locations, congenital syphilis, causes of the varying course of syphilis, diagnosis and examination, prognosis and cure, prophylaxis, treatment), ulcer molle (origin, character and cause, lymphangitis, lymphadenitis), lymphomatosis inguinalis suppurativa (subacute), a name which

he prefers to lymphogranulomatosis inguinalis, granuloma venereum, gonorrhea (the gonococcus, gonorrhea in men, gonorrhea in women, gonorrhoea recti, gonorrhoea conjunctivae et mucosae oris, systemic conditions in gonorrhea, prophylaxis), nonvenereal diseases (urethritis nongonorrhoeica, balanitis, acute gangrene of the external genitalia, ulcer vulvae acutum).

In the treatment of syphilis the author states that Almquist's method (continued course of treatment changing with courses of arsphenamine and bismuth compounds) may be more efficient in early syphilis but that the chronic intermittent treatment (according to Neisser-Fournier) is more useful in later cases.

In the treatment of gonorrhea the use of sulfanilamide has been a distinct advancement. Its side effects will be less and less as our experience with the drug increases.

The textbook is illustrated by many good drawings, especially the histopathologic pictures.

The colored illustrations are reproduced mostly from models by Kroener of Breslau and also by Baretta of Paris, Johnson and Vogelbacher of Freiburg and Kolbow of Berlin. They are almost without exception beautiful and very instructive. This new edition, as the previous ones, should be useful to medical students and general practitioners as well as to dermatologists.

The Physiological Basis of Medical Practice: A University of Toronto Text in Applied Physiology. By Charles Herbert Best, M.A., M.D., D.Sc., Professor and Head of Department of Physiology, University of Toronto, and Norman Burke Taylor, M.D., F.R.S., F.R.C.S., Professor of Physiology, University of Toronto. Second edition. Cloth. Price, \$10. Pp. 1,872, with 497 illustrations. Baltimore: William Wood & Company, 1939.

The first edition of this book appeared in 1937 and had immediate favor from the medical profession, so that there were many reprints. The second edition has been brought quite up to date. The authors have been prevailed on to add a section on the special senses which did not appear in the first edition; this has greatly enlarged the size of the book. The authors have been helped in some of the special chapters by physicians who have given particular consideration to these departments of physiology. The book is supplemented by bibliographic references both to monographs and reviews and to the periodical literature. By the use of various sizes of type and special arrangements, the authors have been able to distinguish those subjects to which the student should give special attention. Obviously it has not been possible for the authors to keep pace with the very latest materials, as, for example, the most recent work on vitamins and glandular substances. Medicine proceeds so rapidly in these modern times as to make almost any medical book necessary of supplement by periodical literature. However, the authors have made available one of the best practical books on physiology, useful either to the student or to the practitioner of medicine.

Cancer Mortality in the United States. II: Recorded Cancer Mortality in Geographic Sections of the Death Registration States of 1920, from 1920 to 1935. By Mary Gover, Associate Statistician, United States Public Health Service. From the Division of Public Health Methods, National Institute of Health. Prepared by direction of the Surgeon General. Federal Security Agency, U. S. Public Health Service. Public Health Bulletin No. 252. Paper. Price, 10 cents. Pp. 74, with 19 illustrations. Washington, D. C.: Supt. of Doc., Government Printing Office, 1940.

Analyses of the course of recorded mortality due to causes which are producing increasing death rates are necessary to show the size and nature of these problems and the rate at which they are changing. The present study shows clearly the changes that are occurring in cancer mortality, since the rates by classification of the site of the disease for the sixteen years studied are confined to the death registration states of 1920 and are therefore less influenced by the fluctuations that often are found in the expanding death registration area when new states were becoming accustomed to death registration values and technique. The cancer mortality rates are tabulated by age, sex, color and site according to the geographic sections of the death registration states of 1920. In each of these five geographic sections the recorded mortality rate for females is higher than the rate for males, varying from a rate of 125.6 per hundred thousand females in the Northeast section to 60.6 per hundred thousand males in the South for an average of the five years 1931-1935.

For each of the three 20 year age groups, 35-54, 55-74 and 75 years and over, the mortality rate from all cancer is

highest in the Northeast and lowest in the South. Cancer of the "stomach, liver, peritoneum, intestines, rectum" and "other or unspecified organs" formed the major portion of the mortality among males but only slightly above 50 per cent of the total rate for all cancer among females. Among the external sites of cancer it is of interest to note the relatively high rate for cancer of the buccal cavity among Southern females, the high rate for cutaneous cancer among both males and females in the South and the relatively slight degree of variability in the rates for cancer of the female genital organs in all sections studied. Mortality from all cancer is increasing in all sections of the United States. The increase in each section is more rapid among males than among females. The South has shown a slightly higher rate of increase than the other four sections included in the study, and in this section the difference is more marked among males than among females. Mortality from cutaneous cancer shows some decline in most geographic sections; cancer of the breast is increasing; cancer of the stomach and liver has declined more among females than among males; mortality from cancer of the peritoneum, intestine and rectum has increased in all five geographic sections, the increase being generally higher among males than females. Mortality from all cancer among Negroes has increased in both the North and the South and, except for cancer of the peritoneum, intestine and rectum among males, the Negro rate is higher in the Northern section than it is in the South.

This is a purely statistical analysis and no attempt is made to suggest any reasons for the differences observed statistically.

Eighteenth Hospital Yearbook. 1940 Hospital Purchasing File: Directory of Products, Manufacturers' Catalogs, Purchasing Standards and Other Reference Data. Boards. Price, \$2.50. Pp. 1012, with illustrations. Chicago: Modern Hospital Publishing Co., Inc., 1940.

In addition to a well indexed advertising section, there is an administrative section of more than 100 pages containing valuable data on the purchase and use of hospital supplies and materials and on many problems arising in the course of hospital administration. There are chapters on purchasing, storage, drugs and pharmaceuticals, furnishings, mechanical equipment, standards for supplies and fire precautions. A chapter is devoted to a safety program for a hospital. There are check lists that should prove suggestive in purchasing for different departments, and a list of national agencies giving the names and addresses of those agencies serving in the hospital and allied fields. The book closes with current hospital statistics devoted mainly to recent reports, per diem costs and other costs for large groups of hospitals in different sections of the country.

A Study of the Nasopharyngeal Bacterial Flora of Different Groups of Persons Observed in London and South-East England During the Years 1930 to 1937. By Edith Straker, M.B., B.S., D.P.H., A. Bradford Hill, D.Sc., Ph.D., and R. Lovell, Ph.D., M.Sc., M.R.C.V.S. Together with Some Observations on the Occurrence of H. influenzae in the Trachea. By A. B. Rosher, M.R.C.S., L.R.C.P., D.P.H., and W. T. Cole. Ministry of Health, Reports on Public Health and Medical Subjects No. 90. Paper. Price, 2s. Pp. 131. London: His Majesty's Stationery Office, 1939.

The monograph comprises an important and extensive contribution to the knowledge of the bacterial flora of the respiratory tract. Relatively large groups of human subjects were involved. In some groups the period of observation was relatively short and the number of observations few, but the noteworthy feature is that in a group of from 150 to 200 subjects bimonthly studies of the nasopharyngeal flora of each individual were made continuously for from five to seven years. Further comparisons of the nasal and nasopharyngeal bacterial content over several years' time also were made. It is impossible to discuss the minutiae, but several facts are established: Pneumococci, hemolytic streptococci, meningococci and Haemophilus influenzae tend to establish themselves in the nasopharynx and, in the absence of epidemics, to maintain a relatively distinctive frequency. Carriers may be classified as constant, intermittent or occasional; the number of individuals in which a given species of the organisms is not found decreases progressively as the number of observations increases. Certain seasonal trends are maintained throughout successive years. For instance, carrier rates are lowest in the third quarter of the year and tend to increase with cold damp weather, although the hemolytic streptococcus was isolated more frequently in warm dry weather. In the winter months extension of bacteria to the nasal tract and

the lower respiratory tract increases. It is also interesting to note that approximately 50 per cent of carriers presented only a single type of pneumococcus and in some instances carried only that type for long periods. Nevertheless, considerable interchange of types occurs. No correlation between bacterial flora and common colds was observed. No significant relation of Haemophilus influenzae to outbreaks of epidemic influenza could be established. Details of the studies are clearly presented with extensive tables and incidence curves. The data offer valuable evidence for all students of respiratory disease.

Common Procedures in the Practice of Paediatrics: Being a Detailed Description of Diagnostic, Therapeutic, and Dietetic Methods Employed at the Hospital for Sick Children, Toronto. By Alan Brown, M.D., F.R.C.P., Physician-in-Chief, Hospital for Sick Children, Toronto, and Frederick F. Tsiddall, M.D., F.R.C.P., Associate Physician, Hospital for Sick Children, Toronto. Third edition. Cloth. Price, \$5. Pp. 314. Toronto: McClelland & Stewart, Limited, 1939.

The technic of the practice of medicine represents a field which is constantly increasing in scope. This book details the diagnostic, therapeutic and dietetic methods employed in the Hospital for Sick Children in Toronto. Discussion of the procedures employed is not included. Rather, the text presents in a brief form the procedures found to be useful in common conditions in hospital practice. The chapters on history taking in infants and children, feeding the infant and child, and therapeutic and diagnostic procedures are especially valuable because of their simplicity, brevity and practical application. The chapter on difficulties in diagnosis deals with many not uncommon disorders, obtained from a review of hospital records, which offered a problem in etiology. In the present edition new sections have been added on feeding, behavior problems, intelligence tests, eczema and related subjects. The book should be of value to interns and general practitioners for practical reference. In the teaching of medical students it should be relied on only to give them practical details of the common procedures employed in the technic of the practice of pediatrics.

The City of New York, Department of Welfare Report for 18-Month Period January 1, 1938-June 30, 1939. William Hodson, Commissioner. Paper. Pp. 193, with illustrations. New York, 1940.

Every seventh person in Greater New York's 7,000,000 population received some type of aid through the department of welfare during the eighteen months ended June 30, 1939, at a total cost of \$213,345,253. This is an annual expense of about three times the annual expenditures for all purposes of the entire federal government in the decade before the Civil War, for a population of between twenty and thirty million. Jan. 1, 1938, the department of welfare had 11,081 employees, of whom only 10 per cent were civil service appointees. Eighteen months later the staff had dropped to 10,370, of whom 79 per cent were civil service appointees. The burden of relief rose and fell in close direct correlation with unemployment. During the eighteen months \$2,397,296.58 was expended for medical care, of which \$1,527,586.50 was paid to doctors. "We must pay wages to our workers which will enable them to maintain a decent standard of living" is the conclusive recommendation of the report.

Personal and Community Health. By C. E. Turner, A.M., Sc.D., Dr.P.H., Professor of Biology and Public Health in the Massachusetts Institute of Technology, Cambridge. Fifth edition. Cloth. Price, \$3. Pp. 652, with 131 illustrations. St. Louis: C. V. Mosby Company, 1939.

For many years this volume has been one of the standard textbooks used by colleges and universities in classes in personal and community hygiene. The present edition follows closely the organization of the previous editions. The first half of the book is devoted to a discussion of personal health and the latter half to community hygiene. The organization of the material follows closely that of most college textbooks on hygiene, taking up the various bodily processes of digestion, respiration, circulation and excretion from the point of view of physiology and function. Included in the personal hygiene section is a discussion also of the organs of special senses and the hygiene of physical activity and body mechanics. With the exception of a considerable revision of the chapter on nutrition, in which the section on the role of vitamins in nutrition has been expanded, there is little difference between the fifth edition and the fourth edition. The section on community health outlines the bacterial theory of communicable diseases and the

essential facts of immunity. The chapter on the three great plagues tuberculosis, syphilis and the common cold has been rather extensively revised, with particular new material in the discussion of the prevention and treatment of syphilis. It is to be regretted that in this revised edition the tables on maternal and infant mortality rates were not brought down to date, as in the five years since the preceding edition there has been a distinct change in the trend of the maternal death rate. The most important revisions in the book appear to be in the section on school hygiene and industrial hygiene. The chapter on school hygiene is an excellent presentation of the present status and recognized problems of the public health program in the schools and should be of great value to college students who are to become teachers. This book will continue to be a valuable reference and textbook for all those conducting hygiene classes for college students.

Obstetrical Procedures and Practice in Hospitals. Report of the Committee on Maternal Welfare of the Canadian Medical Association. Issued by the Department of Hospital Service of the Canadian Medical Association. Paper. Price, 25 cents. Pp. 41. Montreal, [n. d.].

The purpose of this small book is to help in the further reduction of maternal mortality and morbidity by setting up standards of organization in hospitals accepting maternity cases. It is recognized that the problems of the large and small hospitals are different, and these variations are discussed. The standards of organization include accommodations, clinical facilities, organization of the department, clinical records, conferences, care of the newborn and extramural services. It is believed that the standards established, if followed, will aid materially in reducing maternal mortality and morbidity. Among the important subjects considered are the organization of obstetric staffs to control obstetric procedures, the isolation of patients with infections, and standards for sufficient nursing personnel.

Tables, Factors and Formulas for Computing Respiratory Exchange and Biological Transformations of Energy. Prepared by Thorne M. Carpenter, Acting Director, Nutrition Laboratory, Carnegie Institution of Washington. Carnegie Institution of Washington, Publication No. 303B. Third edition. Paper. Price, \$1. Pp. 142. Washington, D. C.: Carnegie Institution of Washington, 1939.

Carpenter has collected from various sources tables, factors and formulas used by biologists in computing respiratory exchange and the transformation of energy. The fact that three editions of these tables have been found necessary indicates the convenience and value of such a compilation to workers in the general field of energy metabolism.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Evidence: Right of Medical Witness to Testify as to Experiments Not Made by Him.—Two policies of insurance issued by the defendant company on the life of Woelfle provided double indemnity if the insured "died as the result of an accident." Woelfle died from a rupture of the aorta, Sept. 9, 1932. The beneficiary brought suit for double indemnity under the policies, contending apparently that the rupture of the aorta was caused solely by an accidental fall suffered by the insured while playing golf four days before his death. From a judgment for the insurance company the beneficiary appealed to the United States circuit court of appeals, eighth circuit.

At the trial, a medical witness called by the insurance company was permitted, over objection, to testify as to experiments, about which he had read but which he had not personally performed, designed to determine the pressure required to rupture an aorta. On the basis of the results of these experiments he gave it as his opinion that a fall such as the insured sustained could not produce a rupture of the aorta. The beneficiary contended that the testimony referred to "was pure hearsay and incompetent." We do not regard the testimony, said the circuit court of appeals, of this witness as to experiments not made by him as hearsay or incompetent. It is apparent that this physician was testifying as to the accepted learning of his profession

and as to the basis on which his ultimate opinion was given. Medical experts are entitled to base their opinions on the teachings of medical science and are not limited to expressing opinions only as to subjects with which they are familiar through their own observation and experience. A rule which precluded an expert from expressing an opinion based on the teachings of his profession would be unsound and impractical.

At the trial a medical witness called by the beneficiary was asked the following question: "Could there have been a rupture as shown by this slide that started on Monday, Sept. 5, 1932, and have ruptured all the way through on Sept. 9, 1932?" The trial court refused to permit the witness to answer the question because it called for a conclusion and the answer would invade the province of the jury and be a mere speculation. In the judgment of the appellate court the trial court erred in so ruling. The very purpose of calling this witness was to obtain his expert conclusion or opinion as to whether the alleged fall on the golf links could have caused and was the probable cause of the death of the insured. The fact that the witness was asked for an opinion on an issue which the jury would be ultimately called on to decide did not affect the admissibility of his opinion. The court concluded, however, that the error committed by the trial court did not justify a reversal of the judgment because the record showed that this medical witness on cross examination testified that "his theory was that there was a partial rupture of the aorta on the 5th of September that went down to a certain place before it ruptured through on the fourth day" and, furthermore, because the witness on cross examination "described in detail how the slides, which were magnified and thrown on the screen, showed that the aorta had been ruptured through nearly all the way, with only a portion holding until it finally ruptured."

The judgment in favor of the insurance company was therefore affirmed.—*Woelfle v. Connecticut Mut. Life Ins. Co. of Hartford, Conn.*, 103 F. (2d) 417.

Pharmacy Practice Acts: "Proprietary Medicine" Defined.—The Business and Professions Code of California, section 4030, makes it unlawful for any person not a registered pharmacist or a registered assistant pharmacist to manufacture, compound, sell or dispense any drug, poison, medicine or chemical. Heron was convicted of violating this section on evidence that he was not a registered pharmacist or a registered assistant pharmacist and that he manufactured and sold at wholesale and retail a product labeled "Heron's Pure Eucalyptus Oil." He then appealed to the appellate department, superior court, Los Angeles County, California.

Heron contended that section 4032 of the Business and Professions Code, which provides that the prohibition contained in section 4030 "does not apply to registered, trade-marked or copyrighted proprietary medicines, registered in the United States Patent Office," permits him to manufacture and sell his product. But, said the appellate court, the language employed in section 4032 to denote medicines that can be sold by persons not registered either as pharmacists or as assistant pharmacists cannot be interpreted literally without robbing it of effect, because medicines, proprietary or otherwise, may not be registered in the United States Patent Office nor may they be trade-marked or copyrighted. In the judgment of the court the legislature undoubtedly intended to exempt from the prohibition in section 4030 those proprietary medicines which are sold in containers bearing the trade-mark of the manufacturer of the medicine, if the trade-mark is, as it may be, registered in the United States Patent Office. As so construed, if the medicine which Heron sold was proprietary it was clearly within the exception, for its container bore Heron's trade-mark, which he had registered in the United States Patent Office. The only question to be determined, then, was whether or not Heron's product was a proprietary medicine. The court recognized the fact that, strictly speaking, only those medicines which are protected by a patent are patent medicines and that a proprietary medicine can only be one which is protected by a patent, for in no other way can a "proprietor" secure an exclusive right of property in its manufacture. Nevertheless it believed that the term "proprietary medicine" as used in the section referred to was

used in a popular sense. Whether or not a product is a patent or a proprietary medicine in a popular sense is dependent not on the fact that it is protected by a patent nor that its maker actually has a secret formula or process but on the dress in which it is offered to the public. Unprotected by a patent, and even though others may actually be manufacturing the same article, a medicine is commonly referred to as a patent or proprietary medicine if its proprietor gives it a trade-name, or his name, offers it to the public as his product, puts it up in a distinctive container and expressly or impliedly claims special virtue for it because of the alleged special formula, skill or care which goes into its manufacture. As was said by the Supreme Court of Arkansas in *Riggs v. City of Hot Springs*, 181 Ark. 377, 26 S. W. (2d) 70:

... where any article intended to be used for medicinal purposes is prepared from a secret formula and is placed in containers, either packages or bottles, for sale, to be used without further preparation, and is labeled so that it may be for immediate use, it is a matter of common knowledge that such remedies are called "patent" or "proprietary" medicines.

For the reasons stated, the appellate court held that "Heron's Pure Eucalyptus Oil" was a "proprietary medicine" not subject to the prohibitions of the pharmacy practice act. The court accordingly reversed the judgment of conviction.—*People v. Heron (Calif.)*, 90 P. (2d) 154.

Charitable Hospitals: Liability Insurance as Affecting Liability to Pay Patient.—The defendant university, an eleemosynary, nonprofit corporation, among other things operates a hospital in which both charity patients and pay patients are treated. The plaintiff was admitted as a pay patient to the defendant's hospital in an irrational and delirious condition. To prevent his getting out of bed 11 inch sideboards were placed thereon. When he was alone in the room he got out of bed, fell against an unguarded heated radiator and sustained severe burns on his back, shoulder and side. He sued the defendant university to recover damages for his injuries. The defendant contended that the action could not be maintained against it because it is a charitable institution and the plaintiff, even though a pay patient, was a recipient of its charity. It claimed the fact, which the plaintiff denied, that while the receipts from pay patients were applied toward defraying the expenses of operating the hospital they were insufficient for that purpose and so the deficit had to be met from the income on the university's endowment. To this the plaintiff replied that the action was maintainable, regardless of the claimed charitable nature of the university's activities with respect to the hospital, because the university carried liability, as distinguished from indemnity, insurance whereby the insurer agreed to pay any judgment rendered against the university for negligence. The defendant then filed a rejoinder and admitted that it carried indemnity but not liability insurance and contended that its nonliability was not changed by reason of such insurance. The trial court sustained the plaintiff's demurrer to this rejoinder and rendered a judgment in favor of the plaintiff for \$2,000. From that judgment the university appealed to the court of appeals of Tennessee, middle section.

The general rule, said the court of appeals, is that a charitable institution is not liable for the negligence of its agents and servants, and that rule is not changed if the institution happens to carry liability insurance to protect it against any liability that the law may impose on it. Also, in Tennessee the rule of nonliability extends no further than protection of the trust property of the charitable institution from diversion from the purposes of the charity to the satisfaction of a tort liability. In so holding, the court relied on *McLeod v. St. Thomas Hospital*, 170 Tenn. 423, 95 S. W. 2d 917 (abstr. J. A. M. A. 108:1464 [April 24] 1937), in which the Supreme Court of Tennessee said:

... it fairly may be said that the exemption and protection afforded to a charitable institution is not immunity from suit, not nonliability for a tort, but that the protection actually given is to the trust funds themselves. It is a recognition that such funds cannot be seized upon by execution, nor appropriated to the satisfaction of a tort liability.

If an institution has property other than that devoted directly to the charitable use, such property may be taken to satisfy liability for the negligence of its servants. Accordingly, the university's trust property could not be taken to satisfy a judg-

ment for tort liability, but the liability insurance carried by the university, which was not trust property, could be appropriated for that purpose.

The court did not agree with the defendant's contention that the *McLeod* case, which involved the liability of a charitable hospital for injury to a pay patient's wife, was authority for holding that a charitable institution is liable, out of its liability insurance, for negligence to a stranger but not to a patient. The court took cognizance of the fact that some cases have held that a charitable institution is not liable for negligence to a patient who avails himself of its benefits on the theory that by accepting those benefits he waives any right he might otherwise have to sue for injuries which he may sustain. But, said the court, the waiver theory has not met with approval in this state. Relying on the case of *Gamble v. Vanderbilt University*, 138 Tenn. 616, 200 S. W. 510, L.R.A. 1918C, 875, the court held that the trust theory could not possibly be applicable in the instant case because the plaintiff was delirious and irrational. In his condition he could not justly be held to have agreed to waive a right of action which the law gave him to recover damages for his injuries. From the standpoint of public policy there is as much reason and justice in compensating a patient for injuries sustained as the result of negligence of a charitable institution's servants as there is for compensating a stranger for injuries similarly inflicted. While a charitable institution's trust property is protected from being applied to satisfy a judgment for tort liability, regardless of whether the plaintiff is a patient or a stranger, any liability insurance carried by that institution should be available to a patient as well as to a stranger, where such patient has paid for the services rendered to him. In the judgment of the court the defendant's servants were negligent when they placed the patient on a narrow bed near a hot radiator, knowing that he was delirious and irrational. In the exercise of ordinary care they should have anticipated that he might get out of bed, come in contact with the radiator and sustain the burns which he actually received.

Accordingly, the court of appeals affirmed the judgment of the trial court in favor of the plaintiff and remanded the case with instructions that the judgment be satisfied only out of the defendant's liability insurance. A petition for a writ of certiorari to review this decision was denied by the Supreme Court of Tennessee.—*Vanderbilt University v. Henderson (Tenn.)*, 127 S. W. (2d) 284.

Workmen's Compensation Acts: Reemployment of Injured Workman at Light Work Constitutes Treatment.—If to improve his health an injured workman, on the recommendation of a physician employed by his employer's insurance carrier, is reemployed by his employer at lighter work at the same wages, such reemployment, said the Supreme Court of Kansas, is not a medicine but does constitute "treatment" within the meaning of that term, as it is used in the workmen's compensation act of Kansas.—*Rupp v. Jacobs et al. (Kan.)*, 88 P. (2d) 1102.

Society Proceedings

COMING MEETINGS

- American Association for the Study of Neoplastic Diseases, Baltimore, June 20-22. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.
- American Association of Genito-Urinary Surgeons, Skytop, Pa., June 20-22. Dr. Charles C. Higgins, 2020 East 93d St., Cleveland, Secretary.
- American Gynecological Society, Quebec, Canada, June 17-19. Dr. Richard W. TeLinde, 11 East Chase St., Baltimore, Secretary.
- American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2065 Adelbert Rd., Cleveland, Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- Montana Medical Association of Bozeman, June 18-20. Dr. Thomas F. Walker, 206 Medical Arts Building, Great Falls, Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- West Virginia State Medical Association, White Sulphur Springs, July 29-31. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama State Medical Assn. Journal, Montgomery

9:333-364 (April) 1940

- James Marion Sims: Father of Modern Gynecology. M. Y. Dabney, Birmingham.—p. 333.
Dr. James Marion Sims. J. M. Bonner, Montgomery.—p. 336.
Histoplasmosis of Darling: Report of Case. W. A. Gunter and C. Lafferty, Montgomery.—p. 337.
Psychosis Precipitated by Sulfanilamide. W. H. Block, Hartselle.—p. 339.
Disease and the Negro: Operations for Perineal Repair. G. Walsh and R. M. Pool, Fairfield.—p. 340.
Treatment of Chronic Dacryocystitis: New Technic. J. A. Keyton, Dothan.—p. 342.
Infections of Kidney. R. R. Callaway, Birmingham.—p. 343.

American J. Digestive Diseases, Huntington, Ind.

7:141-188 (April) 1940

- Fecal Residue of Fat, Protein and Carbohydrate in Normal Dog. R. J. Coffey, F. C. Mann and J. L. Bollman, Rochester, Minn.—p. 141.
Effect of Exclusion of Bile on Absorption of Foodstuffs. R. J. Coffey, F. C. Mann and J. L. Bollman, Rochester, Minn.—p. 143.
Influence of Pancreas on Utilization of Foodstuffs. R. J. Coffey, F. C. Mann and J. L. Bollman, Rochester, Minn.—p. 144.
Substitution Therapy in Experimental Pancreatic Deficiency. R. J. Coffey, F. C. Mann and J. L. Bollman, Rochester, Minn.—p. 149.
Role of Food Intake in Restoration of Liver Following Partial Hepatectomy in Albino Rats. T. E. Machella, G. M. Higgins and F. C. Mann, Rochester, Minn.—p. 152.
*Treatment of Amebiasis by Combined Method—Statistical End Results (Oral Administration of Carbarsone and Retention Enemas of Chiniophon). J. G. Mateer, J. I. Baltz, D. F. Marion and R. A. Hollands, Detroit.—p. 154.
Gastroscopic Observations in Chronic Gastritis. J. B. Carey, Minneapolis.—p. 160.
Gastric Emptying Time and Acidity in Avitaminosis A in Dogs. R. C. Herrin, Madison, Wis.—p. 164.
Precipitability of Pepsin by Colloidal Aluminum Hydroxide. S. A. Komarov and Olga Komarov, Montreal.—p. 166.
Effect of Aluminum Hydroxide Gel on Gastric Secretion in Dog. S. A. Komarov and Luise Krueger, Montreal.—p. 170.
Pseudosurgical Syndromes Produced by Salmonella Organisms. I. Kross and F. Schiff, New York.—p. 176.
Amebic Granuloma of Rectum and Balantidiasis in Same Patient. H. G. Hummel, Little Rock, Ark.—p. 178.
Technic for Radiographic Identification of Lesion Seen in Rectosigmoid with Help of Sigmoidoscope. B. S. Epstein and M. J. Matzner, Brooklyn.—p. 179.

Treatment of Amebiasis by Combined Method.—Mateer and his associates reduced the therapeutic failures of the carbarsone treatment of amebiasis from 10 to 3 per cent by combining it with retention enemas of chiniophon. A single course of carbarsone was given in 104 cases of amebiasis, 0.25 Gm. before breakfast and supper for ten days and enemas of 250 cc. of a 2.5 per cent chiniophon. The enemas were given in the knee-chest position, maintained for five minutes and changed for thirty minutes each to the right side, the left side and the prone position. Follow-up stool examinations consisted of a careful warm stool examination by the same experienced parasitologist every week for four weeks, then every month for five months and subsequently every six months for a total period of three years, or longer when possible. The follow-up study of the 104 patients has varied from six months to three and one-half years. After the combined method of treatment amebas were persistently absent from the stools of 97 per cent, or 101, of the 104 patients. There were no unfavorable drug reactions. The three patients exhibiting a recurrence of amebiasis were treated according to the method (vioform-Giba) of Reed and his associates. The results were:

American Journal of Medical Sciences, Philadelphia

199:449-600 (April) 1940

- Life Expectancy and Mortality from Skin and Lip Cancer. S. Peller, Baltimore.—p. 449.
Scleredema Adulterum. P. A. O'Leary, M. Waisman and M. W. Harrison, Rochester, Minn.—p. 458.
Lysocleithin Fragility Test. K. Singer, Boston.—p. 466.
New Indexes Demonstrating Degree of Anisocytosis in Human Blood. L. van den Berghe and E. Weinberger, Antwerp, Belgium.—p. 478.
Inhibiting Effect of Snake Bloods on Hemorrhagic Action of Viper Venoms on Mice. S. Rosenfeld and S. Glass, Brooklyn.—p. 482.
*Significance of Oxidation of Sulfanilamide During Therapy. C. L. Fox Jr., New York.—p. 487.
Scarlet Fever Therapy: Comparison of Convalescent Serum and Sulfanilamide. M. Fox and M. Hardgrove, Milwaukee.—p. 495.
Limitations of Use of Digitalis for Ambulatory Patients with Auricular Fibrillation. W. Weinstein, J. Plaut and L. N. Katz, Chicago.—p. 498.
Circulation Time (Magnesium Sulfate Method) in Diagnosis of Peripheral Vascular Disease. J. E. Berk, Philadelphia.—p. 505.
Clinical Significance of Bilateral Edema of Lower Extremities. S. A. Foote Jr., W. C. Reed, W. J. Comeau and P. D. White, Boston.—p. 512.
"Pigeon Dermatitis," Vitamin B Deficiency State with Anemia. W. Dameshek and P. G. Myerson, Boston.—p. 518.
Foci of Infection in Psychiatric Patients. C. H. Brown, Detroit.—p. 539.
*Adie's Syndrome: Nonluetic Disease Simulating Tabes Dorsalis. J. M. McKinney and M. Frocht, New York.—p. 546.
Interpretation of Glucose Tolerance Test: Necessity of Standard Preparatory Diet. J. W. Conn, Ann Arbor, Mich.—p. 555.
Composition of Intrapleural Air in Artificial Pneumothorax. A. T. Miller Jr., Chapel Hill, N. C., and Julia M. Jones, New York.—p. 564.

Oxidation of Sulfanilamide During Therapy.—Fox points out that the detection of methemoglobin in the blood of patients treated with sulfanilamide provides a clue to the possible mechanism of action of the drug. As this pigment is formed from hemoglobin only by the action of strong oxidizing agents, the opinion seems warranted that a rather powerful oxidizing agent is present during treatment. Sulfanilamide is not an oxidant and does not form methemoglobin outside the body. The author presents the following points in support of this hypothesis: 1. Complete, initial deprivation of oxygen interferes with bacteriostasis. 2. Increased oxygen availability magnifies bacteriostasis. 3. Reducing agents and large inoculums, which rapidly reduce the potential, obliterate bacteriostasis despite an excess of sulfanilamide. 4. The use of a preformed oxidant derived from sulfanilamide, 4-hydroxylamino sulfonamide, eliminates the usual initial growth period before bacteriostasis appears and gives a more prolonged effect than sulfanilamide. 5. The occurrence of methemoglobinemia in the course of therapy and the occurrence of an oxidation product of sulfanilamide in the urine of treated patients confirm the view that an oxidant is produced in the blood or tissues of the patient.

Adie's Syndrome.—McKinney and Frocht cite seven cases of Adie's syndrome which simulated tabes dorsalis but were of nonsyphilitic origin. The syndrome is characterized by the tonic pupil and the loss of one or more deep reflexes. These symptoms are chronic and stationary. Typical and atypical types exist. The typical case shows a unilateral tonic pupil and one or more absent deep reflexes. These signs remain stationary, do not otherwise impair the patient's health and tend to occur in younger people, more frequently in women. The typical tonic pupil may be tonic to both light and in accommodation but most frequently is fixed to light, dilates slightly in the dark and reacts tonically in accommodation. The tonic reaction is characterized by the slow response to the stimulus usually with a latent period or delay. The tonic pupil contracts slowly and may eventually become smaller than the normal. When the stimulus is removed it may continue to contract, remain stationary for several seconds or proceed to dilate at once. Dilatation once begun tends to proceed at an even slower rate than the preceding contraction. A typical tonic pupil is subject to sudden variations in size, sometimes concomitantly with emotional stress. An atypical tonic pupil may be bilateral. It may be smaller or of the same size as the affected pupil and may be oval in either the vertical or the horizontal diameter. There may be a tonic pupil on one side and a fixed pupil on the other. Adie includes certain cases of a fixed pupil, iridoplegia or inter-nal ophthalmoplegia in this group. Hippus has frequently been reported in association with the tonic pupil. The loss of deep

reflexes is typically confined to ankle jerks and is most often unilateral. Arm jerks have never been lost by any of his patients, and an absent knee jerk was not observed unless the ankle jerk on the same side was also absent. These patients never show ataxia or sensory changes. Adie's syndrome must be differentiated from Argyll Robertson pupil. Diphtheria occasionally gives rise to an internal ophthalmoplegia but never a tonic pupil. True tonic pupils have never been reported as due to epidemic encephalitis and no case of Adie's syndrome has ever shown any of the early or late symptoms of this disease. The possibility of the tonic phenomenon being related to congenital myotonia, Thomsen's disease, is to be considered. However, the absence of muscular myotonic phenomena, the fact that repetition does not quicken the reaction of the pupil and that quinine has no effect make this association seem unlikely. Not all cases of anisocoria fall into the group of the Adie syndrome. In the absence of demonstrable ocular and nervous system lesions, especially if there is any familial or hereditary incidence and inequality of the pupil is associated with diminished or lost ankle jerks, one is justified in placing the case in this group. The inclusion by Adie of the fixed pupil as an atypical form of this syndrome is confusing, as the fixed pupil is a part of many diseases of the nervous system other than the one Adie describes. The localization of the lesion and its nature are unknown. The authors are inclined to agree with Adie that it is a benign disease *sui generis* and that the syndrome coexists with other diseases but is not caused by them. They encountered their seven cases in the last eighteen months and therefore believe that the disease is not rare but that it is frequently overlooked and that many of the cases are still being treated for syphilis in spite of negative serologic tests.

American Journal of Ophthalmology, St. Louis

23:371-498 (April) 1940

- Corneal Transplantation: Critical Review of Sixteen Cases. J. W. McKinney, Memphis, Tenn.—p. 371.
- *Relation of Capillary and Corneal Osmosis to Glaucoma Therapy. W. H. Luedde, St. Louis.—p. 388.
- Metastatic Carcinoma of Iris. Mary Knight Asbury and D. Vail, Cincinnati.—p. 402.
- Optic Papilla in Septic and Chronic Endophthalmitis. H. D. Lamb, St. Louis.—p. 408.
- Pathogenesis of Retinitis Pigmentosa (Sclerosis Pigmentosa Choriorretinalis): II. Local Symptomatology. Lizzie Levy-Wolff, Tel-Aviv, Palestine.—p. 418.
- Familial Progressive Juvenile Cataracts (Parathyroid Deficiency). R. von der Heydt, Chicago.—p. 434.
- Study of Interrelationship of Retinal and Systemic Arterial Pressures and Intra-Ocular Tension in Normal and Syphilitic Patients. Elizabeth F. Constantine, Baltimore.—p. 436.

Capillary and Corneal Osmosis in Glaucoma.—Luedde defines glaucoma as an intra-ocular edema with inadequate drainage. Edema is directly related to osmosis of fluid through the walls of the capillary network. Glaucoma may be caused by general or local conditions which influence capillary permeability or which obstruct drainage from the eyeball. Capillary permeability may be affected by vasomotor disorders related to nervous or chemical stimuli, posture or trauma and also by toxic or nutritional alterations of the blood plasma which may modify the intracapillary colloid osmotic pressure of the blood. Variations in capillary blood pressure are more significant for glaucoma than the general blood pressure. Intracapillary pressure may be relatively low when the general systolic pressure is elevated. Comprehensive treatment of glaucoma may include sympathicotonic remedies for vasomotor control, elimination of focal or general toxins and other medication and regulation suggested by a general examination. Imperfect drainage from the eyeball may be caused by blockade of any normal venous or lymphatic efferent channel. Clinical and experimental studies support the preeminence assigned to the iridocorneal drainage angle, because it leads to the venous plexus in the canal of Schlemm and permits transudation of intra-ocular fluids through the corneal limbus into the subconjunctival spaces and possibly to the external surface of the cornea. Therefore local medical treatment should include ischemics to reduce local congestion and miotics to open the iridocorneal angle. Successful surgical therapy may include the opening of the iridocorneal angle, transfixion or excision of iris tissue and the establishment of sub-

conjunctival drainage through the corneal limbus. Because of corneal permeability, it is probably more important to excise a small portion of corneal stroma than to cut into the sclera to secure a filtering scar at the limbus.

American Journal of Public Health, New York

30:325-462 (April) 1940

- A Half Century of the Massachusetts Public Health Association. C. E. A. Winslow, New Haven, Conn.—p. 325.
- Approaching the Health Problems of Adult Life Through Industry. C. D. Selby, Detroit.—p. 336.
- Alkyl-Dimethyl-Benzyl-Ammonium Chloride for Sanitization of Eating and Drinking Utensils. A. J. Krog, Plainfield, N. J., and C. G. Marshall, New York.—p. 341.
- Prevalence of Pneumococcus Carriers: Specific Types in Epidemic and Non-epidemic Areas. E. L. Stebbins, J. E. Perkins, E. S. Rogers, R. D. Champlin and W. R. Ames, Albany, N. Y.—p. 349.
- *Immunization Against Pneumonia. L. D. Felton, Washington, D. C.—p. 361.
- Basic Principles of Industrial Sanitation. J. M. DallaValle and R. R. Jones, Washington, D. C.—p. 369.
- Some Notes on Sanitary Land-Fills. L. V. Carpenter and L. R. Setter, New York.—p. 385.
- Medical Care of the Indigent Non-Hospital Contagious Patient, with Particular Reference to Whooping Cough. H. O. Zamkin, New York.—p. 394.
- Falciparum Malaria Among Drug Addicts: Epidemiologic Studies. H. Most, New York.—p. 403.
- Epidemiology of Anthrax in North Dakota. J. A. Cowan, Bismarck, N. D.—p. 411.
- Hospital Morbidity Reporting. Helen R. Jeter and Marta Fraenkel, New York.—p. 417.

Immunization Against Pneumonia.—Felton arrives at the following conclusions after a study of 1,099 persons before and after immunization with an antigenic pneumococcus polysaccharide, polyvalent types I and II: (a) the percentage of persons with antibody prior to immunization is 32.2 per cent with type I and 32.6 per cent with type II; (b) after immunization, the percentage showing serum antibodies is 94.5 for type I and 98.9 for type II; (c) this response shows no significant variation in the different age groups; (d) irrespective of the age groups tested, the response as indicated by serum antibody titer varies from protection by 0.1 cc. of serum against 100,000 lethal doses to that against as little as 1 lethal dose; (e) certain persons fail to produce antibody—with type I out of 1,099 there were sixty, or 5.5 per cent, and with type II twelve, or 1.1 per cent. It is suggested that this individual variation to pneumococcus polysaccharide antigen is an important factor in the relative resistance to pneumococcal infection.

American Review of Tuberculosis, New York

41:403-530 (April) 1940

- *Extrapleural Pneumothorax: Critical Survey. F. S. Dolley, J. C. Jones and Jane Skillen, Olive View, Calif.—p. 403.
- Id. E. D. Churchill, Boston.—p. 423.
- Hematogenous Tuberculosis with Involvement of Larynx. A. G. Cohen, New York.—p. 426.
- The Physician in Tuberculosis Case Finding. E. Bridge and Arelyn Thurston, Rochester, N. Y.—p. 444.
- Changing Prognosis in Pulmonary Tuberculosis: Study of Fatality Rates Among Patients Discharged from the Trudeau Sanatorium. E. Bogen, Olive View, Calif.—p. 447.
- Intrapleural Pressures in Artificial Pneumothorax. J. Segal, Bronx, New York.—p. 461.
- Methods of Preserving Tuberculin Protein. Florence B. Seiberl and Emma H. DuFour, Philadelphia.—p. 471.
- Bacillary Counts in Sputum: Quantitative Method for Determining Number of Tubercle Bacilli in Sputum. Agnes Beebe Vogt, P. Zappasodi and E. R. Long, Philadelphia.—p. 481.
- *Vitamin C in Tuberculosis: Ascorbic Acid Content of Blood and Urine of Tuberculous Patients. C. E. Chang and T. H. Lan, Chengtu, China.—p. 494.
- Attenuation by X-Rays of Human Tubercle Bacilli (Second Paper). W. F. Drea, Colorado Springs, Colo.—p. 507.
- Immunizing Property of Heat-Killed Tubercle Bacilli. A. P. Damerow, Denver.—p. 512.

Extrapleural Pneumothorax.—Dolley and his associates reviewed 141 operations on 135 patients and data on 2,500 cases from clinics abroad and in the United States. Theoretically, an endothoracic extrapleural pocket maintained by air pressure as a substitute for an inadequate intrapleural pneumothorax approaches the ideal. The authors adopted the classification of Schmidt, Adelberger and Theiss, who define indications for extrapleural pneumothorax as absolute, broad or conditional. Extrapleural pneumothorax patients require less postoperative sedation than thoracoplasty patients. Immediately following the

closure of the wound sufficient air is injected into the extrapleural pocket to establish +10 or +15 pressure. This usually amounts to from 75 to 125 cc. The needle is inserted just lateral to the incision. Twenty-four hours after the operation air is again introduced. A daily fluoroscopic examination is made for the first week and the patient is given from one to four refills during this period, after which he is placed on a weekly schedule. From four to six weeks after the operation there is a progressive increase in the size of the pocket with a rise in final pressure readings. If the pocket contracts to a point at which it is feared that further expansion of the lung will be accompanied by reopening of the cavity, the patient is placed on a biweekly refill schedule. If this does not control reexpansion, so-called antisymphysial oleothorax of Schmidt is created. Postoperative complications are hemorrhage, infection, emphysema, embolism, atelectasis, tuberculous bronchopneumonia and pleuritis. Intrapleural pneumothorax should be attempted before an extrapleural space is created. When a limited thoracoplasty combined with extrafascial apicolysis affords the probability of cavity closure without an extensive sacrifice of uninvolved lung, it is the procedure of choice. When these conditions do not obtain, the ultimate prognosis for return to economic self support seems fully as good with extrapleural pneumothorax, despite the protracted requirements of space maintenance. In the conditional group of thirty-five patients 40 per cent have negative sputum, 49 per cent have positive sputum and 11 per cent are dead. Of forty patients in the broad group 70 per cent have negative sputum, 27 per cent have positive sputum and 2 per cent are dead. Of the twenty-five patients with absolute indications, all have negative sputum. No death has occurred. The results convince the authors that the creation and maintenance of an extrapleural pocket is the most satisfactory procedure when the indications for it are either absolute or broad, when the patient refuses thoracoplasty and is very young or old, when thoracoplasty would reduce vital capacity so much that anoxemia would preclude future physical activity, when bilateral disease precludes thoracoplasty, when frequent alarming hemorrhages render graded thoracoplasty a hazardous undertaking and when there is serious constitutional disease. The conclusions of the men who furnished data on the 2,500 cases are: 1. Intrapleural pneumothorax and limited thoracoplasty are to be preferred when they can be reasonably relied on to produce cavity closure and sputum conversion. 2. When neither is likely to succeed, extrapleural pneumothorax will be instrumental in obtaining approximately 63 per cent of sputum conversions. 3. Comparatively early oil conversion is advisable to control the pocket, to eliminate the difficult space maintenance, to reduce expense of frequent refills and to minimize infection. 4. The end result will be permanent oleothorax or partial lung reexpansion with a small residual oleothorax or obliterating extrapleural fibrosis with little likelihood that a thoracoplasty will be required.

Vitamin C in Tuberculosis.—Chang and Lan studied the vitamin C content of the blood and urine of 100 tuberculous patients and of ten normal persons. The saturation test was also carried out to see whether hypovitaminosis C in tuberculosis indicates an original unsaturation of the vitamin in the body. In tuberculous patients the range of vitamin C in blood plasma was from 0.03 to 0.6 mg. per hundred cubic centimeters, while in normal persons it was from 0.64 to 1.14 mg. The amount of vitamin C excreted in the urine in twenty-four hours by the tuberculous patients ranged from 1.3 to 69.54 mg., while in normal persons the range was from 24.4 to 72.6 mg. The tuberculous patients who excreted comparatively large amounts of vitamin C in the urine showed a low concentration in the blood plasma. This may indicate a lower renal threshold for vitamin C in tuberculous patients. In many other cases there was a low vitamin C level in both blood and urine; this may again point to "unsaturation" of the vitamin in the body tissues. Analysis shows that the more severe the tuberculous infection the lower the figure: in tuberculous patients with unilateral pulmonary tuberculosis the vitamin C plasma content was 0.373 mg. and the urinary excretion 28.109 mg., while in bilateral pulmonary tuberculosis the respective figures were 0.227 and 20.546 mg. In the childhood type of pulmonary tuberculosis the vitamin C content in the blood was found to be higher than in the adult type, while the quantity of vitamin C eliminated in the urine was much less than in the adult type. This may be

because children excrete comparatively smaller amounts of urine and hence the vitamin C contained in it is less than that in the adult urine. The saturation test performed on five tuberculous patients and two normal persons indicated that the vitamin C in the body is proportional to the severity of the tuberculous infection.

Annals of Surgery, Philadelphia

111:513-672 (April) 1940. Partial Index

- Pathologic Classification, with Surgical Consideration of Intrapleural Tumors. T. B. Rasmussen, J. W. Kernohan and A. W. Adson, Rochester, Minn.—p. 513.
- *Cervical Ribs and Scalenus Muscle Syndrome. R. H. Patterson, New York.—p. 531.
- Thrombosis of Third Portion of Subclavian Artery Associated with Scalenus Anticus Syndrome. B. C. Smith, New York.—p. 546.
- Cervical Rib Causing Partial Occlusion and Aneurysm of Subclavian Artery. W. F. MacFee, New York.—p. 549.
- Persistent Spinal Fluid Fistula Due to Foreign Body: Associated with Stab Wound of Heart with Recovery. D. H. Smith, New York.—p. 577.
- *Duodenojejunoscopy for Congenital, Intrinsic, Total Atresia at Duodenojejunal Junction: Successful Result in 3 Day Old, One Month Premature Infant Weighing 4 Pounds 2 Ounces. D. Stetten, New York.—p. 583.
- Lymphangiomas of Great Omentum. D. P. Hall, Louisville, Ky.—p. 605.
- Use of Whole Blood as a Means of Preventing Peritonitis and Adhesions: Preliminary Report. E. G. Joseph, Jerusalem, Palestine.—p. 618.
- Intravenous Use of Serum and Plasma, Fresh and Preserved. M. M. Strumia, J. A. Wagner and J. F. Monaghan, Bryn Mawr, Pa.—p. 623.
- Fundamental Factors Governing Lymphatic Spread of Carcinoma. R. K. Gilchrist, Chicago.—p. 630.
- Massive Doses of Lugol's Solution in Acute, Secondary Parotitis. D. J. Leithauser and M. O. Cantor, Detroit.—p. 650.

Cervical Ribs and Scalenus Muscle Syndrome.—Patterson reports thirty-one cases of cervical rib which fall into four groups: (1) enlarged transverse process, usually of the seventh cervical vertebra, (2) bilateral ribs of the floating type or articulating with the first rib, (3) unilateral rib, either floating or articulating with the first rib and (4) rudimentary rib tip, either single or bilateral. One patient had rudimentary rib tip at the sixth cervical vertebra and fully developed ribs from the seventh cervical vertebra. A single rib, with or without a rudimentary tip on the opposite side, was three times as frequent as bilateral ribs. Enlarged transverse processes and bilateral ribs were about equal in number. The symptoms of sixteen patients related to pressure or irritation of some part of the brachial plexus or subclavian artery. The lower nerves of the brachial plexus were more commonly involved. The patients' complaints, in their relative frequency, were pain of varying intensity, tiredness and weakness of the extremity, cramps in the fingers, numbness, tingling or coldness of the hand, areas of hyperesthesia, shrinking of some of the muscles of the hand, a lump at the base of the neck, tremor of the fingers and discoloration of the fingers. Work and exercise accentuated the symptoms. They were in part relieved by elevation of the upper extremity and by rest. For operative approach the author advises division of the anterior and medial scalenus muscles and removal of the rib. Division of the anterior scalenus through the muscle belly helps to avoid injury to the pleura. The dome of the pleura is probably higher in the neck of people with cervical ribs. Even in the presence of a cervical rib, differential diagnosis must exclude arthritis of the spine or shoulder, bursitis, apical tumors, neuritis, vascular diseases, congenital deformities and cardiac disease. Lateral roentgenograms will frequently show the cervical rib running diagonally across the body of the seventh cervical vertebra; they will also show the pleura at the base of the neck in front of the spine. Aneurysms of the subclavian artery caused by cervical ribs or anterior scalenus syndrome are rare. If present they may be doubly ligated and resected with safety. Circulatory disturbances are probably due to repeated stimulation of the vasoconstrictor nerves or to direct pressure on or angulation of the subclavian vessels.

Duodenojejunoscopy for Atresia.—Stetten operated successfully in a congenital case of intrinsic total atresia at the duodenojejunal junction. A boy baby 3 days old and one month premature did not retain any feedings, vomited bile-stained material from birth and had passed only a few meconium stools. He was feeble, emaciated, deeply jaundiced and quite dehydrated, weighing 4 pounds 2 ounces (1,871 Gm.). The abdomen was distended, the stomach dilated with visible gastric peristalsis, and an indefinite sausage-like mass could be palpated running

obliquely from the right upper to the left lower quadrant. X-ray examination showed no passage of barium after three and one half hours beyond the point of obstruction at the duodenojejunal junction. At operation, under ether-drop anesthesia, the sausage shaped duodenum was yellowish pink and occupied a good part of the abdomen. The distended duodenum terminated abruptly, closed by a total, intrinsic diaphragmatic atresia, and continued in a much contracted, thin-walled jejunum which was not much more than 0.125 inch in diameter. The remainder of the small and large intestine was crowded over to the left side of the abdomen, and the ileocecal junction, a tiny appendix and a primitive cecum lay in the angle formed by the stomach joining the duodenum—indicating an arrested rotation of the colon. The lumen was patent and a typical lateral, quite satisfactory antiperistaltic duodenojejunostomy, about 0.72 inch in length, was made. The child was kept in the incubator for five weeks. Blood transfusions were given and clyses, twice daily, were continued until the diarrhea was controlled. From then on the recovery was uneventful, with a gradual increase in weight until the child's discharge from the hospital at the age of 3 months, when its weight was 7 pounds 2 ounces (3,232 Gm.). The child is now 22 months old, unusually husky, in excellent health, and has a perfect digestion with normal stools. His weight is 28 pounds (12.7 Kg.) and his height 33 inches (84 cm.).

Archives of Otolaryngology, Chicago

31:561-710 (April) 1940

- Roentgen Diagnosis of Cancer of Accessory Sinuses. G. E. Pfahler and J. H. Vastine 2d, Philadelphia.—p. 561.
Nasal Plethysmometry as New Test for Sinus Thrombosis. H. A. E. van Dishoeck, Amsterdam, Netherlands.—p. 588.
Infections of Parapharyngeal Space. H. Brunner, Chicago.—p. 597.
Osteomyelitis of Frontal Bone: Surgical Treatment: Which Way of Approach Is the Best? K. Kettel, Copenhagen, Denmark.—p. 622.
Piriform Sinus: Anatomic and Clinical Observations, with Review of Literature. H. P. Schugt, New York.—p. 626.
Chondroma of Ethmoid: Report of Case. H. L. Hickey, Denver.—p. 645.
Congenital Atresia of Postnasal Orifices: Simple, Effective Office Technic for Treatment by Electrocoagulation. D. J. Morgenstern, Brooklyn.—p. 653.
Advances in the Field of Allergy as Related to Otolaryngology During the Year 1939. W. W. Duke and C. M. Kohn, Kansas City, Mo.—p. 687.

Archives of Pathology, Chicago

29:455-588 (April) 1940

- Congenital Infection of Lungs, Middle Ears and Nasal Accessory Sinuses. Miriam C. Benner, Denver.—p. 455.
*Ulceroglandular Tularemia: Report of Three Fatal Cases with Autopsies. L. L. Terry and H. S. Reichle, Cleveland.—p. 473.
Incidence of Induced Pulmonary Tumors in Susceptible Mice Raised in Dust-Free Air. E. Lorenz and H. B. Andervont, Bethesda, Md.—p. 484.
Metaplasia of Epithelium of Prostatic Glands, Utricle and Urethra of Fetus and Newborn Infant. H. Brody and S. Goldman, New York.—p. 494.
Pathology of Spontaneous Pneumonitis and Hepatitis in Mice. G. Freeman, Chicago.—p. 505.
Cystitis Follicularis in Dog. L. F. Greene and W. H. Feldman, Rochester, Minn.—p. 511.

Ulceroglandular Tularemia.—Terry and Reichle state that of the twenty-three persons in Cleveland who had tularemia during the winter of 1937-1938 (November-March, the period during which rabbits are hunted or shipped in from other places) three died. The three fatal cases were traced to the dressing of wild rabbits. The incubation period was from two and a half to three and a half days in one instance, five days in another and indeterminate in the third. The striking clinical characteristic of the primary lesions was their relatively benign appearance as contrasted with their painfulness. The duration of illness of two patients was six days, while the other died on the tenth day. The clinical course was characterized by hyperpyrexia, severe toxicity, delirium and coma. Icterus was present terminally in one case, while in another bleeding into the skin, subcutaneous tissues, regional lymph nodes and recti abdominis was observed. The serologic observations were fairly constant and characteristic in all cases. Treatment by sulfanilamide (one case), specific immune serum and convalescent serum was not effective. *Pasteurella tularensis* was not found in the circulating blood but was recovered at necropsy from lymph nodes in two cases and from the hemorrhagic mass in the rectus muscles

in the third. Bacterial stains failed to reveal the organisms in tissue sections. The lesions in lymph nodes, spleen, liver and lungs were characteristically those of a necrotizing inflammation in which large mononuclear cells, often actively phagocytic, predominated. Lesions of the gastrointestinal tract were confined to the gastric mucosa, where small superficial ulcerations had resulted in gross hemorrhage. A focal infiltration of lymphocytes and large mononuclears at the base of an ulcer in one case is suggestive but not conclusive evidence of the specificity of the lesion. Microscopic study of the hemorrhagic mass in the rectus muscle revealed no lesions of a specific nature. Cultures from it yielded *Pasteurella tularensis*.

Archives of Surgery, Chicago

40:821-1038 (May) 1940

- Compound Fractures. W. Darrach, New York.—p. 821.
*Treatment of Compound Fractures, with Special Reference to Military Surgical Procedures. H. W. Orr, Lincoln, Neb.—p. 825.
Treatment of Compound Fractures. W. O. Sherman, Pittsburgh.—p. 838.
Compound Fractures. J. T. Reynolds, C. R. Zeiss and W. R. Cubbins, Chicago.—p. 844.
*Compound Fracture Therapy at the Boston City Hospital. O. J. Hermann, Boston.—p. 853.
High Chromium, Low Nickel Steel in Operative Fixation of Fractures. S. Hudack, New York.—p. 867.
*Situs Inversus Totalis and Disease of Biliary Tract: Survey of Literature and Report of Case. G. O. Wood and A. Blalock, Nashville, Tenn.—p. 885.
Surgical Treatment of Sigmoidovesical Fistulas. C. W. Mayo and J. M. Miller, Rochester, Minn.—p. 897.
Clinical Use of Synthetic Substance Resembling Vitamin K (2-Methyl-1,4-Naphthoquinone). J. G. Allen and O. C. Julian, Chicago.—p. 912.
Regional and General Temperature Response Following Experimentally Induced Acute Inflammation and Infection. G. J. Heuer and H. Conway, New York.—p. 917.
Studies in Etiology of Acute Appendicitis: Inquiry into Factors Involved in Development of Acute Appendicitis Following Experimental Obstruction of Appendical Lumen of Rabbit. C. Dennis, R. E. Buirge, R. L. Varco and O. H. Wangenstein, Minneapolis.—p. 929.
Papillary Carcinoma of Pelvis of Kidney. H. C. Saltzstein and D. C. Beaver, Detroit.—p. 949.
Importance of Simple Ulcer of Right Side of Colon in Diagnosis of Abdominal Disease. H. Harrison, Boston.—p. 959.
Intrathoracic Neurofibroma: Brief Review of Literature and Report of One Case. H. Lavender and Hazel R. Prentice, Kalamazoo, Mich.—p. 973.
Influence of Bone Ash on Repair of Bone. J. D. Bisgard, Omaha, and H. H. Macumber, Cleveland.—p. 984.
Adenosquamous Carcinoma of Peripapillary Portion of Duodenum. M. M. Lieber, H. L. Stewart and D. R. Morgan, Philadelphia.—p. 988.
Gastric Crisis of Tabes Dorsalis: Treatment by Anterior Chordotomy in Eight Cases. O. R. Hyndman and F. J. Jarvis, Iowa City.—p. 997.
Seventy-First Report of Progress in Orthopedic Surgery. J. G. Kuhns, R. J. Joplin, W. A. Elliston, G. G. Bailey, J. A. Reidy, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York, and F. W. Hlford, Los Angeles.—p. 1014.

Treatment of Compound Fractures.—Orr's suggestions, first advocated twenty years ago, include rules for early reduction and the application of closed plaster of paris casts. For first aid on the battlefield or at the scene of the accident the use of a tourniquet and traction immobilization in a Thomas splint are life saving and limb saving. The patient thus managed may be transported safely to a hospital where efficient traction, débridement, petrolatum pack drainage and fixation in a cast may be done. The author has followed this plan for years. Trueta employed it successfully during the Spanish Civil War. In the experience of other competent observers good results are obtained by the method of infrequent dressing in from 85 to 90 per cent of compound infected fractures. The same technic is applicable during the first few hours as well as in cases presenting a fracture in malposition, an infected wound, septicemia or pyemia. A restless patient with an unreduced fracture, muscle spasm, pain and a septic wound can do himself more harm every hour than the surgeon in thirty minutes while permanently immobilizing the fractured limb, adequately draining the wound and fully protecting the wound and the limb against further trauma and infection.

Compound Fracture Therapy.—According to Hermann, 398 patients aged from 1 to 80 years with "open," or compound fractures were treated at the bone and joint service of the Boston City Hospital. Treatment began on the accident floor. The treatment consists of immediate institution of shock and

hemorrhage therapy, exposure of the compound fracture, material culture from the wound and immediate covering with a sterile dressing. A prophylactic dose of 100 cc. of gas gangrene antitoxin and 1,500 units of antitetanus serum are given intramuscularly. Patients with large macerated or extremely dirty wounds are given 100 cc. of gas gangrene antitoxin and 5,000 units of antitetanus serum; this dose is repeated twice during the first ten days. The skin round the wounded area is cleansed and shaved and the wound covered with sterile gauze. The wound is debrided and flushed with warm salt solution followed by an ether wash, the bone and its coverings being avoided. The fractured ends are gently curetted and the wound is again gently irrigated. Loose and comminuted fragments of bone should not be removed unless they are practically extruded from the wound and completely separated from all blood supply. X-ray examination often determines the decision between internal fixation and conservative treatment. A small percentage only requires internal fixation. Accurate reduction and apposition are paramount. Whether the wound should be left open, or treated by the Orr method, by dakinization, by primary suture and temporary direct or dependent drainage or by simple primary suture is controversial. They are all good methods. The surgeon should use the method with which he has obtained the best results, but he should not be dogmatic in its use. Hermann and his associates prefer primary closure without drainage. They have used it in 85 per cent of their cases and the Orr method and dakinization in the remainder. The open method was employed when a large area was involved. A large percentage of patients without internal fixation and in whom the fracture has been more or less easily reduced do well with the molded plaster of paris cast. Fractures with a marked degree of overriding or comminution with displacement require traction in arm or leg splints. Complicating gas bacillus or tetanus infection should receive prompt and radical treatment with appropriate stimulation and supportive medical measures. The same may be said of the virulent streptococcal and staphylococcal infections. The original culture of material taken from the wound may give an even earlier warning than the characteristic odor of gas infection.

Situs Inversus and Biliary Tract Disease.—According to Wood and Blalock, the literature reveals only seventeen cases of lesions of the biliary tract associated with situs inversus. In several of these the diagnosis has not been confirmed by x-ray or operative examination. Only one of the nine patients giving this information was left handed. In eleven of the sixteen cases in which the location of pain and tenderness was mentioned, the left upper quadrant of the abdomen and the back were the major points of involvement. In two instances most of the discomfort was on the right side, and in three it was in the epigastrium. The tendency of pain to be referred to the right from a viscus transposed to the left is not so great with cholecystitis as it is with appendicitis. In more than half of the cases of appendicitis associated with situs inversus the localizing signs were in the right lower quadrant of the abdomen. The authors' case is one of only two presenting disease of the gallbladder and situs inversus in which most of the discomfort was in the right upper quadrant. These facts make the anatomic and pathologic diagnosis of "left sided" cholecystitis somewhat easier than that of "left sided" appendicitis. Although situs inversus is usually compatible with normal health and longevity, there is some evidence that persons with this condition have a higher percentage of congenital abnormalities. The incidence of bronchiectasis in situs inversus is markedly increased. The status of situs inversus has changed from that of an anatomic curiosity to a clinically important entity. Its early recognition is especially important in certain surgical emergencies.

Arkansas Medical Society Journal, Fort Smith

36:241-266 (April) 1940

- Analysis of Routine Sedimentation Rate in 1,000 Admissions to the Arthritis Clinic, Levi Memorial Hospital. S. D. Weil, E. M. Smith, L. E. King and W. T. Wootton, Hot Springs National Park.—p. 241.
- Use of Air in Treatment of Spastic Paralysis. P. Murphey, Little Rock.—p. 243.
- Clinical Use of Sulfamethylthiazole in Infections Caused by Staphylococcus Aureus: Case Report. F. H. Krock and C. T. Chamberlain, Fort Smith.—p. 247.

Canadian Medical Association Journal, Montreal

42:311-412 (April) 1940

- Note on Measurement of Diastolic and Systolic Blood Pressure by Palpation of Arterial Vibrations (Sounds) Over Brachial Artery. H. N. Segall, Montreal.—p. 311.
- How to Get into Trouble with Fractures. J. H. Couch, Toronto.—p. 314.
- Chemotherapy of Acquired Syphilis. H. Orr, Edmonton, Alta.—p. 316.
- Treatment of Schizophrenia by Hypoglycemia. E. C. Menzies, St. John, N. B.—p. 320.
- Vertigo. M. Atkinson, New York.—p. 326.
- Differential Diagnosis of Cause of Recurring Abdominal Pain in Infants and Children. R. R. Fitzgerald, Montreal.—p. 332.
- *Diabetic Coma. A. F. Fowler, E. H. Bensley and I. M. Rabinowitch, Montreal.—p. 336.
- Congenital Arteriovenous Fistula. J. C. Luke, Montreal.—p. 341.
- Parathormone Shock Treatment in Postoperative Tetany. J. H. Mullin and F. Elliott, Hamilton, Ont.—p. 345.
- Dysmenorrhea. N. F. Miller, Ann Arbor, Mich.—p. 349.
- In Vitro Experiments on Effect of Addition of Blood Serum and Blood Plasma on Sedimentation Rate. R. R. Struthers and H. L. Bacal, Montreal.—p. 354.
- The Radiologist as a Consultant. W. M. Gilmore, Stratford, Ont.—p. 357.
- Some Clinical Lesions of Vulva. P. J. Kearns, Montreal.—p. 361.
- The Cosmetic Eye—A Pericocular Dermatitis. L. P. Ereaux, Montreal.—p. 364.
- Some Aspects of Neonatal Mortality Rate. C. K. Rowan-Legg, Ottawa, Ont.—p. 367.
- Studies with a Newer Anesthetic: Ethyl N. Propyl Ether. W. E. Brown, Toronto.—p. 370.
- Giant Follicular Lymphadenopathy. C. Powell, Port Arthur, Ont.—p. 372.

Diabetic Coma.—Fowler and his associates record a series of blood sugar time curves to demonstrate the different responses to treatment of diabetic coma with one simultaneous injection of 100 units of unmodified insulin intravenously and 100 units of unmodified insulin and 200 units of protamine zinc insulin subcutaneously. All the cases demonstrated that there need be no fear of hypoglycemic reactions when the treatment is combined with frequent feedings of carbohydrates. A table recording the carbohydrate balances of eleven cases demonstrated that the average blood sugar before treatment of 0.612 per cent was reduced to 0.165 per cent during an average period of 5.5 hours, and that, despite the administration of an average of 781.4 Gm. of sugar during a period of 34.4 hours, the average amount found in the urine was 52.4 Gm. only; that is, an average of 729.0 Gm. was retained. This retention was not artificial but due to utilization either by storage or by oxidation. These patients utilized not only the enormous amounts of carbohydrates administered but also, either by storage or by oxidation, appreciable amounts of the excesses which the blood contained prior to treatment. Correlation of clinical and laboratory data and comparison with the old method of treatment have shown that recovery is more rapid with the new method and convalescence more satisfactory. The mortality with this method of treatment is definitely less than with the older methods.

Endocrinology, Los Angeles

26:565-734 (April) 1940. Partial Index

- Quantitative Studies on Hormones of Human Pituitaries. E. Witschi and G. M. Riley, Iowa City.—p. 565.
- Antibody Response in Rabbits to Extracts of Human Pregnancy Urine and to Extracts of Normal Female Urine. Katharine M. Howell and S. Soskin, Chicago.—p. 577.
- Action of Diethylstilbestrol in Gynecologic Dysfunctions. R. Kurzrok, L. Wilson and W. H. Perloff, New York.—p. 581.
- Action of Estradiol, Progesterone and Testosterone on Contractions of Human Uterus. L. Wilson and R. Kurzrok, New York.—p. 587.
- Sex Hormone Studies in Male Homosexuality. S. J. Glass, H. J. Denel and C. A. Wright, Los Angeles.—p. 590.
- Effect of Anterior Pituitary-like Sex Hormone on Blood Picture in Man. W. M. Moffat, Santa Barbara, Calif.—p. 595.
- Endocrine Dwarfism: Fourth Report. R. L. Schaefer and F. L. Strickrood, Detroit.—p. 599.
- Pituitary Function in Adiposogenital Dystrophy (Fröhlich). H. Schwarz, A. B. Newman and H. Baum, New York.—p. 605.
- Effects of Large Doses of Protamine Zinc Insulin in Nondiabetic Individuals. D. Goldman, Cincinnati.—p. 612.
- Metabolism of Estrogens: Effect of Liver and Uterus on Estrone, Estradiol and Estrinol. C. G. Heller, Madison, Wis.—p. 619.
- Blood Adrenalin Levels During Insulin Shock Treatments for Schizophrenia. Esther Bogen Tietz, H. Dornheggen and D. Goldman, Cincinnati.—p. 641.
- Effects of Testosterone Propionate on Ovarioectomized Mature Rat. M. Mazur and C. Mazur, Philadelphia.—p. 662.
- Influence of Uterus on Corpus Luteum. O. Hechter, M. Fraenkel, M. Lev and S. Soskin, Chicago.—p. 680.
- Lipoid, Calcium, Phosphorus and Iron Content of Rats with Hypothalamic and Hypophyseal Damage. A. W. Hetherington and A. Weil, Chicago.—p. 723.

Indiana State Medical Assn. Journal, Indianapolis

33:171-226 (April) 1940

- Development of Cancer Clinic. J. W. Hofmann, Indianapolis.—p. 171.
 Early Symptoms and Signs of Cancer of Stomach. J. F. Habermel, New Albany.—p. 175.
 Medical Service in Indiana Industries. L. W. Spolyar, Indianapolis.—p. 176.
 Surgery of Hip. W. C. Campbell, Memphis, Tenn.—p. 179.
 Collapse Therapy in Pulmonary Tuberculosis. F. L. Jennings, Indianapolis, and P. M. Mattill, Oak Terrace, Minn.—p. 184.
 The Physician in the Schools. C. C. Wilson, Hartford, Conn.—p. 189.
 The Operation of a Venereal Clinic. M. Miller, Evansville.—p. 192.
 Doctor Books. J. O. Ritchey, Indianapolis.—p. 194.

Johns Hopkins Hospital Bulletin, Baltimore

66:207-262 (April) 1940

- Chemistry of Enzymes. J. H. Northrop, Princeton, N. J.—p. 207.
 Effect of Insulin on Glycogen Content of Isolated Muscles. C. L. Gemmill, Baltimore.—p. 232.
 Studies on Cellular Response in Early Stages of Tuberculin Reaction. R. H. Follis Jr., Baltimore.—p. 245.
 Pseudothrombotic Occlusion of Common Femoral Artery by Cystic Distention of Arterial Wall. E. S. Stafford, Baltimore.—p. 253.

Journal of Bone and Joint Surgery, Boston22:261-524 (April) 1940. *Partial Index*

- Restoration of Physiologic and Anatomic Function in Old Ununited Intracapsular Fractures of Neck of Femur. E. L. Compere, Chicago, and J. Lee, Los Angeles.—p. 261.
 Surgical Approach in Supracondylar T Fractures of Humerus Requiring Open Reduction. G. W. Van Gorder, Boston.—p. 278.
 Osteoclasia for Supination Deformities in Children. W. P. Blount, Milwaukee.—p. 300.
 Relation Between Reduced Ascorbic Acid Levels of Blood Plasma and Rheumatoid Arthritis. R. H. Jacques, Columbus, Ohio.—p. 324.
 Deformity of First Metatarsal Head Due to Faulty Foot Mechanics. L. F. Miller and J. Arendt, Chicago.—p. 349.
 Analysis of Twenty-Eight Consecutive Cases of Incapacitating Shoulder Lesions, Radically Explored and Repaired. D. M. Bosworth, New York.—p. 369.
 Irreducible Buttonhole Dislocations of Fingers. S. Selig and A. Schein, New York.—p. 436.
 Control of Fragments After Osteotomy for Congenital Dislocation of Hip: Simple Guide for Control of Anterior Angulation. H. Unger and T. L. Waring, Iowa City.—p. 448.

Journal-Lancet, Minneapolis

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- *Antenatal Tuberculosis: Report of Case in Premature Infant. A. J. Moss and A. V. Stoesser, Minneapolis.—p. 142.
 Tuberculosis in China. E. L. Lee, Shanghai, China.—p. 145.
 Tuberculosis Control in Scandinavia. H. E. Hilleboe, St. Paul.—p. 147.
 Investigation into Occurrence of Bovine Pulmonary Tuberculosis in Man in the South of Sweden. E. Hedvall, Lund, Sweden.—p. 151.
 Case Finding in Tuberculosis. P. C. Benton, Gibbon, Minn.—p. 155.
 Tuberculosis in Lincoln County, Minnesota. A. L. Vadheim, Tyler, Minn.—p. 158.
 Fluoroscope and Pneumothorax Apparatus as Tools for Protection of Public Health. J. R. Pastor, San Juan, Puerto Rico.—p. 160.
 Control of Tuberculosis Among Students at the University of Pennsylvania. H. D. Lees, Philadelphia.—p. 162.
 *Tuberculin Testing Results for 3,421 College Students, State of Washington, 1935-1938. S. L. Cox and Mrs. J. Earl Thornton, Seattle.—p. 165.
 *Fluorography: New Method of Obtaining Radiographs of Chest at Low Cost. G. Ruiz Cestero, San Juan, Puerto Rico.—p. 168.
 Protection of Unavoidably Exposed Persons Against Tuberculosis. R. G. Ferguson, Fort San, Sask.—p. 170.
 The Need of a Rational Medical Technic: For the Safeguarding of Hospital Personnel and Medical Students. W. J. Dobbie, Toronto.—p. 173.
 Ninth Annual Report of the Tuberculosis Committee, American Student Health Association, for the Year 1938-1939.—p. 178.
 Dividends from a Tuberculosis Control Project Among Students. J. B. Amberson Jr., New York.—p. 186.

Antenatal Tuberculosis.—Moss and Stoesser report a case of prenatal tuberculosis with no postnatal exposure to the disease. Study of the case suggests that the antenatal tuberculosis arose from aspiration of infected amniotic fluid, as the involvement at necropsy of the 38 day old infant was most marked in the respiratory tract. Neither the placenta nor the amniotic fluid was available for examination, as the condition was not suspected until the baby was studied at necropsy. The infant was not in contact with the tuberculous mother. It was transferred to the pediatric service immediately after birth. The child's condition remained fairly good for twenty-eight days, at which time the temperature rose to 102 F. and from that time the temperature rose daily to 103 F., rising to 105 F. on the

day of death. There were intractable diarrhea and spells of cyanosis and persistent hyperpnea. Repeated examinations revealed no definite cause for the respiratory and intestinal distress; the clinical picture resembled pneumonia. At necropsy most of the organs were normal except the lungs and thymus, in both of which firm yellowish nodules were found. On pressure, thick creamy material was expressed from the nodules about and in the thymus. Microscopic examination revealed numerous polymorphonuclear cells and large necrotic mononuclear cells in the bronchi and alveoli. The necrotic material did not appear caseous, and in many areas the epithelioid cells had oriented themselves in a circumferential direction to give a surrounding thin zone resembling a zone of fibrosis. Smears showed numerous acid-fast bacilli. A few small atypical tubercles were seen in the liver. These showed central necrosis which did not appear caseous. A few areas in the spleen contained more or less atypical tubercles. Multiple tubercles were observed in the thymus and lymph nodes. Large and small lymphocytes were present in the sinuses. Several well circumscribed cortical adenomas were present in one adrenal and an extracapsular hemorrhage in the other adrenal. Immediately following delivery the mother (aged 33) began to have a fever of from 100 to 102 F. The Mantoux test on admission was strongly positive. X-ray examination eight days after delivery showed no evidence of pulmonary pathologic changes. After the necropsy of the infant a biopsy of the mother's cervix was performed and the lower uterine segment curetted. The pathologist reported a tuberculous involvement of the endometrium and cervix. X-ray studies of the chest indicated a possible capillary bronchiolitis. It was questionable whether the changes in the chest could be due to miliary tuberculosis. During her hospital stay of sixty-five days catheterized urine was repeatedly negative. Repeated sputum and stool examinations were negative for tubercle bacilli. Further x-ray examinations revealed that the pulmonary process was miliary tuberculosis. Death occurred from generalized miliary tuberculosis four months post partum. Necropsy revealed the presence of nodular pulmonary tuberculosis, generalized miliary tuberculosis, tuberculosis of the peritoneum, endometrium and cervix, appendical abscess with communication into the cecum and tuberculosis of the right uterine tube.

Tuberculin Testing of College Students.—Cox and Thornton discuss the results of four years of tuberculin testing in six colleges with a total enrolment of 8,676 students. Of these only 4,417 were accessible for the tuberculin test, 3,421 or 77.5 per cent of whom responded. There were 23.6 per cent positive tuberculin reactors. The positive reactions were higher in students coming from urban areas. The majority of students (75 per cent), lived in sparsely settled communities. There was an increasing incidence of tuberculous infection from the first to the fourth year in college, the average increase being 1.2 per cent annually. A history of contact was given by 23.3 per cent of the group and positive reactions were twice as prevalent in these cases. There was a high incidence of tuberculous infection when the contacts had close relationships or associations.

Fluorography.—Cestero defines fluorography as a combination of the processes of a camera, a fluorescent screen and an x-ray tube. The result is a minute photograph which, when flung on a screen or looked at through a magnifying glass, is augmented to twice or six times its diameter without loss of the smallest detail of diagnostic value. As a result of the improvement of the modern x-ray apparatus, the technic of fluorography is practically perfect. Modern photographic lenses have an extraordinary speed. During the last three years, emulsions used in photographic work have produced almost incredible results. Some are actually sensitive to infra-red. The fluorograph constructed by the author is 12 inches wide, 16 inches high and 33 inches long. He uses a Patterson B 12 by 16 inch fluoroscopic screen, and a Leica f/2 lens. The focal spot screen distance is 25 inches and screen film distance is 33 inches. The object was to use each film (2.4 by 3.5 cm.) to its fullest extent. The sensitive surface of these films is less than 200 times smaller than the usual film and their cost is 100 times less. Before the introduction of the paper film the cost of each chest film per capita was \$1. In a smaller number of fluorographic tests the per capita cost was shown to be 3 cents. This short test shows

that fluorography is forty times more economical than fluoroscopy and roentgenography. However, the method does not pretend to supersede either. The method has the advantages of low cost and accuracy of detail, necessary when dealing with mass tuberculosis surveys. It is the only means so far developed by which a thoracic census can be made in Puerto Rico rapidly, economically and efficiently.

Journal of Nutrition, Philadelphia

19:213-310 (March) 1940. Partial Index

- Effect of Ferric Chloride on Utilization of Calcium and Phosphorus in Animal Body. Peggy Rehm and J. C. Winters, Austin, Texas.—p. 213.
- Investigation of Vitamin C Content of Florida Fruits and Vegetables: I. Effects of Maturation and of Cold Storage on Vitamin C Potency of Oranges and Grapefruit. R. B. French and O. D. Abbott, Gainesville, Fla.—p. 223.
- Graying of Fur and Other Disturbances in Several Species Due to a Vitamin Deficiency. Agnes Fay Morgan and Helen Davison Simms, Berkeley, Calif.—p. 233.
- Observations on Amount of Ascorbic Acid Required to Maintain Tissue Saturation in Normal Adults. E. N. Todhunter and Ruth C. Robbins, Pullman, Wash.—p. 263.
- Effect of Cooking on Thiamin Content of Foods. Elizabeth Aughey and Esther Peterson Daniel, Washington, D. C.—p. 285.

Journal of Pediatrics, St. Louis

16:409-548 (April) 1940

- *Relationship Between Biophotometer Tests and Vitamin A Content of Blood of Children. W. S. Baum and Augusta B. McCoord, Rochester, N. Y.—p. 409.
- *Treatment of Rickets and Tetany by Parenteral Administration of One Massive Dose of Vitamin D. H. Vollmer, New York.—p. 419.
- Evaluation of a Health Program for Foster Home Children in an Industrial Community. J. A. Johnston and P. J. Howard, Detroit.—p. 433.
- Eight Year Survey of Tuberculosis Control Program Among Noncontact Infants and Young Children. Antoinette Raia and H. Chaplin, New York.—p. 438.
- Icterus Gravis Neonatorum: End Results of Syndrome of Nuclear Jaundice. I. P. Sobel and J. M. Zucker, New York.—p. 445.
- *Influenzal Meningitis. N. Silverthorne and A. Brown, with technical assistance of W. M. Johnstone and Agnes Walker, Toronto.—p. 456.
- Mechanical Respirator in Poliomyelitis. J. L. Wilson, Detroit.—p. 462.
- Rocky Mountain Spotted Fever in Children. D. W. Martin, Durham, N. C.—p. 463.
- Relation of Hypoglycemia to Symptoms Observed in Infants of Diabetic Mothers: Report of Six Cases. H. C. Miller and R. A. Ross, New Haven, Conn.—p. 473.
- Congenital Hypoplasia of Mandible. H. H. Weisengreen and E. D. Sorsky, Fresno, Calif.—p. 482.
- Actinomycosis: Report of Case in Child with Recovery Following Thymol Therapy. H. H. Clemens, Louisville, Ky.—p. 487.
- Fulminating Meningococcemia with Bilateral Adrenal Hemorrhage (Waterhouse-Friderichsen Syndrome). J. A. Danciger, New York.—p. 495.
- Epidemiolysis Bullosa Hereditaria. G. M. Waddill Jr., Amarillo, Texas.—p. 500.
- Hypersensitivity to Sulfanilamide Following Roentgen Therapy. M. B. Marks, Miami Beach, Fla.—p. 503.
- Subacute Yellow Atrophy of Liver, with Unusual Abdominal Venous Bruit. H. Herman, New York.—p. 507.

The Biophotometer Test and Vitamin A Content.—Baum and McCoord state that of ninety-eight untrained children tested once with the biophotometer nineteen showed subnormal dark adaptation by Jeans's standards. The more lenient Frober-Faybor standards showed the same normal grouping, but only one subject had a subnormal reading. Seventy children whose dietary history was obtained showed no correlation between their diets and the biophotometer readings. Subjective symptoms of vitamin A deficiency were not complained of. Correlation was absent between all readings of the biophotometer and the vitamin A, carotene and xanthophyll content of the blood. The vitamin A content of the blood agreed well with the clinical condition of the patient and has shown the expected variations after vitamin A absorption tests. It may be that a single estimation may not give the correct estimation of the supply of vitamin A to the retina. Several of nineteen trained subjects showed improvement on repeated testing without administration of vitamin A. Although about 20 per cent of the untrained subjects were classed as subnormal by Jeans's standards, only about 10 per cent of the trained ones fell in the subnormal range. Biophotometer readings in this group showed no correlation with blood vitamin A values, but there was a suggestive correlation between the *d*, or first reading of the second test period, and the average carotene content of the blood. This may be of

interest in view of Wald's observations that carotene improves dark adaptation in a deficient subject more rapidly than does vitamin A.

Vitamin D in Rickets and Tetany.—According to Vollmer, parenteral administration of one massive dose of vitamin D in a solvent of peanut oil and ether had the same effect on rickets and tetany of 158 infants and acted as quickly as the same doses of vitamin D administered by mouth. Serum calcium and phosphorus became normal after from three to seven days. Generally the calcium deposition in the bones made its first x-ray appearance in one week, proceeded rapidly and was usually complete thirty days after treatment was begun. Tetanic convulsions ceased within twenty-four hours after the parenteral administration of the one massive dose of vitamin D. No difference was observed between the effect of vitamin D₂ and vitamin D₃. The parenteral administration of 600,000 units of vitamin D caused no local infiltration or evidence of systemic damage. No casts containing calcium were found in the urine.

Influenzal Meningitis.—Silverthorne and his associates made a comparative study of influenzal meningitis over a period of twenty years. Of seventy patients treated from 1919 to 1929 sixty-nine died, a mortality of 98 per cent. From 1930 to 1939 sixty-five patients were treated with anti-influenzal serums and fifty of these died, a mortality of 76 per cent. "Head colds" occurring from two days to one month prior to the onset of meningeal signs were present in thirty-one of the sixty-five. Fever, vomiting, drowsiness and irritability were present in the majority. "Soreness of the neck" or "stiffness of the neck" on attempted movement was complained of by many children. There was little difference in the mortality of patients treated with anti-influenzal horse serum intravenously and anti-influenzal horse serum and human serum (complement) intrathecally and of those treated with anti-influenzal horse serum intravenously and bactericidal guinea pig serum intrathecally. During the last four years the authors studied thirty-two cerebrospinal fluid strains of *Haemophilus influenzae* from their patients. Thirty-one of the strains examined fall into type B. Twenty-eight of the thirty-two strains were found to have some degree of virulence and four strains showed no virulence in mice. From the observations it appears that cerebrospinal fluid strains from cases of influenzal meningitis are, in the main, a homogeneous series, with a few exceptions: One strain did not produce indole, one strain was not type B, and four strains (three patients from whom these strains were obtained recovered) did not possess virulence when injected with mucin into mice intraperitoneally. Because of technical difficulties in the production of guinea pig serum, the authors developed an immune anti-influenzal rabbit serum which contains mouse-protecting antibodies against a fatal infection with meningeal strains of *Haemophilus influenzae*. They used this serum and sulfapyridine in one case, with gratifying results. Chemotherapeutic agents with immune serum mixtures are recommended rather than the use of either alone. In addition, continuous intravenous therapy and daily lumbar puncture with drainage should be carried out. In a series of experiments they found that, with the combined therapy, mouse-protecting antibodies are developed in the serum of rabbits injected with meningeal strains of *Haemophilus influenzae*.

Journal of Pharmacology & Exper. Therap., Baltimore

68:419-510 (April) 1940. Partial Index

- Detoxication and Excretion of Beta-Phenylisopropylamine (Benzedrine). K. H. Beyer, Madison, Wis., and J. T. Skinner, Bowling Green, Ky.—p. 419.
- Protective Action of Testosterone Against the Kidney Damaging Effect of Sublimite. H. Selye, Montreal.—p. 454.
- Blacktongue Curative Effect of Pyridine- β -Carboxylic Acid Diethylamide (Coramine). D. T. Smith, G. Margolis and L. H. Margolis, Durham, N. C.—p. 458.
- Effect of Drugs on Vitamin C Excretion. L. T. Samuels, N. D. Ritz and Ellen B. Poyet, Minneapolis and Los Angeles.—p. 465.
- Effect of Furfuryl Trimethyl Ammonium Iodide on Various Autonomic Functions in Man. A. Myerson, M. Rinkel, J. Loman and W. Dameshek, Boston.—p. 476.
- Studies on Absorption, Distribution and Elimination of Alcohol: V. Influence of Glycocol on Absorption of Alcohol. II. W. Haggard and L. A. Greenberg, New Haven, Conn.—p. 482.
- Relation Between Drug Action and Calcium-Potassium Ratio in Striated Muscle. A. M. Harvey, London, England.—p. 494.

Laryngoscope, St. Louis

50:277-372 (April) 1940

- Physiology of Larynx: Résumé and Discussion of Literature for 1939. J. J. Pressman, Los Angeles.—p. 277.
- Type III Pneumococcus Meningitis of Otic Origin: Recovery Following Treatment with Sulfapyridine. M. S. Ersner, D. Myers and M. B. Hayes, Philadelphia.—p. 302.
- Otic Hydrocephalus. H. Rosenwasser, New York.—p. 307.
- Operation for Cure of Postauricular Fistulas: Report of Eight Consecutive Cases. S. D. Greenfield, Brooklyn.—p. 312.
- Audiometric Range in Allergy. G. J. Greenwood, Chicago.—p. 326.
- Suffocation Due to Alcohol Intoxication. C. Hirsch, New York.—p. 331.
- Needle in Aorta (with Lantern Slides): Bilateral Empyema (Leptothrix). D. H. Jones, New York.—p. 341.
- Genitonasal and Genito-Aural Relationships. H. Mortimer, Montreal.—p. 349.
- Carcinoma of Nasopharynx with Extension to Petrous Pyramid: Report of Case. J. G. Druss, New York.—p. 359.

Maine Medical Association Journal, Portland

31:95-114 (April) 1940

- Chronic Arthritis: Therapeutic Considerations. R. T. Phillips, Portland.—p. 95.
- Modern Prognosis and Therapy of Schizophrenia (Dementia Praecox) from the Standpoint of the General Practitioner. A. A. Weil, Augusta.—p. 99.
- Critical Evaluation of Skin Tests in Allergy. A. L. Maicetta, Winchester, Mass.—p. 105.

Medical Annals of District of Columbia, Washington

9:109-152 (April) 1940

- Regional Enteritis. R. J. Coffey, Washington.—p. 109.
- Sulfanilamide Therapy, with Special Reference to Ear Infections. J. W. Lindsay, E. C. Rice and M. A. Selinger, Washington.—p. 115.
- *Diagnosis and Treatment of Laryngeal Tuberculosis. E. A. Looper, Baltimore.—p. 120.
- Management of Acute Cholecystitis. J. A. Cahill Jr., Washington.—p. 127.
- Psychiatry and Criminal Law. E. M. Curran, Washington.—p. 130.

Laryngeal Tuberculosis.—Looper found the onset to be most frequent between 20 and 40 years of age in a study of 500 patients with laryngeal tuberculosis. The complication is secondary to the pulmonary condition and results from lowered tissue resistance. The diagnosis is not difficult and the lesion responds to treatment. The classic subjective symptoms should not be waited for before the larynx is examined. The posterior laryngeal wall is the most frequent as well as the first area to be infected. The anatomic construction of the interarytenoid region makes it particularly susceptible to invasion of tubercle bacilli. Next in order of frequency are the vocal processes and the vocal cords. The ventricular bands are not involved as frequently as the cords, but a lesion here may be very extensive, and tuberculomas are not uncommon. The prognosis here is much better than in disorders of the arytenoids, epiglottis or pharynx. Pharyngeal tuberculosis is fortunately rare. It is a grave condition for which little can be done. Certain complaints often help to recognize early lesions. Dryness and burning of the throat should be regarded with suspicion. This frequently occurs two or three weeks before a definite lesion can be seen. Pain referred to the ear and in the region of the throat usually indicates some laryngeal infiltration. A well advanced infection in the interarytenoid space or ventricle may give little or no disturbance, but a small degree of infiltration of the cord will produce huskiness and later hoarseness or aphonia. Infiltration and ulceration around the arytenoids and epiglottis interfere with swallowing. A biopsy may be necessary. Many cases of laryngeal tuberculosis can be prevented by earlier recognition, educational measures and correction of pathologic conditions in the upper respiratory tract. In all cases in which tuberculous invasion of the larynx has been discovered, absolute rest of the voice is essential. The electric cautery has been most beneficial. Early lesions clear up after two or three treatments, and advanced cases show marked improvement after a few cauterizations. The cautery is of great palliative value in severe and hopeless cases. Of the 500 patients with laryngeal tuberculosis treated in the sanatorium, 142 had moderate pulmonary involvement. The throats of ninety-five were cauterized. The throats of 136 of the 358 patients with far advanced pulmonary involvement were cauterized. The throats of ninety-three patients of the first group were improved and healed, and two patients died.

The laryngeal lesion in both of these had healed. Of the patients in this group whose throats were not cauterized, fifteen were improved and healed, twenty-six were unimproved and six died. Of the 136 patients in the second group, cautery treatment improved and healed the throats of ninety-three, twenty-two were not improved and nineteen died. Of the 222 patients in this group whose throats were not cauterized, fourteen were improved and healed under sanatorium care, 112 were unimproved and ninety-six died. Cautery treatment is contraindicated in advanced toxic cases.

Michigan State Medical Society Journal, Lansing

39:229-292 (April) 1940

- Rheumatic Fever: Diagnosis and Treatment. H. McCulloch, St. Louis.—p. 243.
- Sulfanilamide in Treatment of Mooren's Ulcer. M. J. Blaess, Detroit.—p. 249.
- Surgically Difficult Growths of Female Pelvic Viscera. A. H. Curtis, Chicago.—p. 250.
- Sulfanilamide Failure. W. E. Keane, Detroit.—p. 252.
- Peptic Ulcer: Thermal Effects. W. R. Clinton and S. Adler, Detroit.—p. 253.
- Coccogenous Sycosis: Treatment. H. J. Parkhurst, Toledo, Ohio.—p. 255.
- Bladder Diseases: Treatment in Women. W. J. Butler, Grand Rapids.—p. 259.
- Hyperthyroidism: Diagnosis. G. Crile Jr., Cleveland.—p. 263.

Military Surgeon, Washington, D. C.

86:341-424 (April) 1940. Partial Index

- Exhibits and Medicomilitary Preparedness. S. A. Cohen.—p. 341.
- Primary Adenocarcinoma of Jejunum: Case Report. L. B. Kline and A. M. Schaefer.—p. 350.
- Oral Infection in Arthritis. C. P. Canby.—p. 355.
- Aviation Medicine. A. W. Hankwitz.—p. 363.
- Anatomic and Physiologic Conditions of Feet. A. Steindler.—p. 379.
- Physical Measures for Treatment of the Disabled. F. H. Krusen.—p. 391.

New England Journal of Medicine, Boston

222:657-698 (April 18) 1940

- Treatment of Epilepsy and of Migraine. W. G. Lennox, Boston.—p. 657.
- Urinary Infections in Infants and Children. B. W. Carey, Detroit.—p. 662.
- Inguinal Herniorrhaphy in the Aged: Analysis of 100 Consecutive Cases in Patients Over 65 Years of Age. T. B. Quigley, Boston.—p. 666.
- *Chronic Brucellosis: I. Incidence of Chronic Undulant Fever in Rhode Island. C. C. Dustin and H. L. C. Weyler, Providence, R. I.—p. 670.
- Allergic Diseases, with Special Reference to Histamine and Acetylcholine. F. M. Rackemann, Boston.—p. 674.

Chronic Brucellosis.—According to Dustin and Weyler, the clinical picture and course of the usual acute form of brucellosis has been adequately described; they believe, however, that there exists a chronic form of this infection in human beings. A study of more than 4,000 individuals in Rhode Island during the past four and a half years has revealed in 441, or about 10 per cent, clinical and laboratory evidence supporting a diagnosis of chronic brucellosis. Seven hundred and ninety-nine (18 per cent) had positive reactions to one of the following three tests: intradermal, intramuscular, agglutination. The 441 who had clinical evidence of chronic brucellosis showed positive reactions to at least two of these. The relation between chronic brucellosis and personal allergy is significant. In 92 per cent of the cases studied there was a history of allergy and in all there was a history of allergy in the immediate families. Many so-called neurasthenics may be suffering from this condition. Its clinical aspect is varied and puzzling to the patient and physician alike. It does not follow the usual course of chronic infection so much as it does that of a chronic allergic state. If chronic brucellosis is considered from the standpoint of allergy, desensitization would be a reasonable system of treatment. Because of the unusual characteristics of the brucella organisms and the ease with which all food produce, including meats, eggs, butter, ice cream, cheese, milk, fruits and vegetables, may become contaminated, it is evident that milk should not be regarded as the commonest source of infection. The authors describe their application of the available diagnostic methods and enter a plea for more serious consideration of chronic brucellosis.

New Orleans Medical and Surgical Journal

92:545-606 (April) 1940

- Dr. Charles C. Bass, Dean: An Appreciation. R. Matas, New Orleans.—p. 545.
Carcinoma of Rectum: Symptoms and Diagnosis. W. H. Hebert, New Orleans.—p. 551.
Gastrosomy in Surgery. D. C. Browne, New Orleans.—p. 558.
Chronic Duodenal Ileus. W. C. McCoy, New Orleans.—p. 564.
Osteomyelitis of Upper End of Femur: Description of a Diagnostic Sign. W. Moss, Lake Charles, La.—p. 569.
Delivery of the Breech. G. A. Mayer, New Orleans.—p. 572.
Radium Treatment of Hemangiomas. W. R. Harwell, Shreveport, La.—p. 576.

New York State Journal of Medicine, New York

40:615-692 (April 15) 1940

- Roentgen Ray Therapy of Skin Cancer Overlying Cartilage and Bone. A. H. Dowdy, Rochester.—p. 621.
Orogenous Parietal Cerebral Abscess Due to Pneumococcus Type III: Recovery After Drainage, Specific Antiserum and Sulfanilamide: Report of Case. W. B. Hamby, D. H. Sherman, C. W. Greene and E. Witebsky, Buffalo.—p. 627.
Allergic Treatment of Chronic Sinus Conditions: Report of Fifty Cases. M. Vaisherg, New York.—p. 631.
Teratoma of Testis with Negative Aschheim-Zondek Test: Report of Case. M. M. Melicow, New York.—p. 637.
Problems and Results Related to Care of the Premature Infant. J. H. Hess, Chicago.—p. 641.
Syphilitic Aortic Disease: Analysis of 508 Cases. A. Levitt and D. S. Levy, Buffalo.—p. 648.
Amateur Medical Cinematography. B. M. Bosworth, New York.—p. 653.
*Changing Factors in Diphtheria Immunity: Its Production and Duration. E. L. Stebbins, H. S. Ingraham and H. L. Chant, Albany.—p. 658.
Toxemia of Pregnancy: Endocrine Basis with Classification of Hypertension. J. J. Vorzimer, E. M. Rappaport and E. G. Langrock, New York.—p. 666.

Changing Factors in Diphtheria Immunity.—According to Stebbins and his collaborators, an analysis of mortality from diphtheria in New York State from 1898 to 1937 indicates that some factor tending to reduce mortality has been in operation since 1900 but that the rapid acceleration in the decrease in mortality in recent years coincides with the increase in artificial immunization. An attempt was made to determine the comparative efficacy of the three different immunizing agents used extensively in the state in terms of immunity as measured by Schick test surveys and by the incidence of clinical diphtheria among the groups of individuals given immunizing treatments. The gross results of treatment with the different agents, measured by Schick tests in two cities in 1938, seem to indicate no difference in the efficacy of toxin antitoxin and alum precipitated toxoid but significantly inferior results following fluid toxoid. The incidence of clinical diphtheria in individuals immunized with the different agents was compared, but, because of the probable difference in risk of exposure, conclusions as to the efficacy of the agents drawn from these data would be of questionable validity. Observations on the prevalence of diphtheria carriers in two cities, Kingston and Ossining, in which the incidence of clinical diphtheria has been extremely low for several years, showed a distinctly lower prevalence of both avirulent and virulent carriers than has been reported from carrier surveys in areas in which clinical diphtheria was more prevalent. In Ossining a slight but significant increase in diphtheria occurred immediately preceding the survey and, while the prevalence of carriers of *Corynebacterium diphtheriae* was not increased, the prevalence of toxigenic organisms was higher than in Kingston, where clinical infection continued at a low level. These observations suggest a direct relationship between the prevalence of clinical infection and the prevalence of carriers of virulent organisms. In view of the present decreased prevalence of carriers of toxigenic *Corynebacterium diphtheriae* in Kingston, the rapidity of natural immunization might be less than at a time when clinical infection occurred more frequently. The proportion of Schick-negative reactors in the age groups observed in Kingston in 1922 compared with the results among persons not artificially immunized who were tested in the 1938 survey, while showing no difference in the proportion of Schick-negative individuals of all ages, did show a significantly lower proportion of negative reactors in children under 10 years of age in 1938. These observations lend support to the theory that with the decreasing incidence of clinical infection and the associated decrease in the prevalence of carriers of toxigenic *Corynebacterium diphtheriae*, natural immunization is materially reduced.

Pennsylvania Medical Journal, Harrisburg

43:897-1056 (April) 1940

- Prevention, Diagnosis and Immediate and Remote Treatment of Toxemias of Late Pregnancy. C. H. Peckham, Baltimore.—p. 909.
Factors in Morbidity and Mortality in Advanced Hyperthyroidism. H. L. Foss, Danville.—p. 923.
Role of Vitamin B₁ in Nutrition, with Special Reference to Hospital Diets. A. I. Rubenstein, D. Meranze and T. Meranze, Philadelphia.—p. 930.
Pennsylvania's Crippled Child of Yesterday and Today. J. J. Shaw, Harrisburg, and J. R. Martin, Philadelphia.—p. 935.
Differential Diagnosis of Diseases of Liver: Some Newer Aspects of Therapy. H. F. Robertson, Philadelphia.—p. 938.
Classification and Diagnosis of Anemias. J. W. Howard, Abington.—p. 941.
Clinical Aspects and Treatment of Pernicious Anemia. F. A. Evans, Pittsburgh.—p. 946.
Septic Arthritis of Hip: Treatment by Immobilization. J. T. Nicholson, Philadelphia.—p. 950.
Further Résumé of the Pomeroy Method of Sterilization. C. B. Lull, Philadelphia.—p. 956.
Safeguarding the Public Health. Martha Tracy, Philadelphia.—p. 959.
The Thymus Question. J. B. Butchart, Bethlehem.—p. 962.
Diabetes: II. Diabetic Hospital Admissions in Pennsylvania. B. C. Blaine, Pottsville.—p. 966.

Physiological Reviews, Baltimore

20:159-312 (April) 1940

- Experimental Hypertension. A. Blalock, Nashville, Tenn.—p. 159.
Plasma Proteins: Their Source, Production and Utilization. S. C. Madden and G. H. Whipple, Rochester, N. Y.—p. 194.
Study of Intermediary Metabolism of Animals with Aid of Isotopes. R. Schoenheimer and D. Rittenberg, New York.—p. 218.
Relation of Nicotinic Acid to Pellagra. C. A. Elvehjem, Madison, Wis.—p. 249.
Physiology of Articular Structures. W. Bauer, Marian W. Ropes and H. Waime, Boston.—p. 272.

Southern Medical Journal, Birmingham, Ala.

33:337-448 (April) 1940. Partial Index

- Contact Dermatitis from Vegetation: Patch Testing and Treatment with Plant Oleoresins. B. Shelmire, Dallas, Texas.—p. 337.
*Study of Acute Infectious Lesions of Intervertebral Disks. R. K. Ghormley, W. H. Bickel and D. D. Dickson, Rochester, Minn.—p. 347.
*Differential Diagnosis of Breast Tumors. A. C. Scott, Temple, Texas.—p. 356.
Chronic Sinus Infection in Children: Results with Roentgen Therapy. P. A. McLendon and R. R. Rathbone, Washington, D. C.—p. 366.
Obstructions of Vesical Neck in Children. R. W. McKay, Charlotte, N. C.—p. 377.
Results of Untreated Urologic Conditions in Childhood. J. E. Glenn, St. Louis.—p. 388.
Etiology of Kaposi's Disease: Preliminary Report of Investigations. R. M. Choisser and Elizabeth M. Ramsey, Washington, D. C.—p. 392.
Treatment of Corneal Ulcers, with Emphasis on X-Ray Therapy and Use of Vitamins. M. Baird and G. E. Clay, Atlanta, Ga.—p. 396.
Sulapyridine in Treatment of Pneumococcal Pneumonia. W. G. Reddick, Dallas, Texas.—p. 415.
Polypoid versus Carcinomatous Lesions of Colon and Rectum. W. J. Martin Jr., Louisville, Ky.—p. 428.
Cobra Venom for Relief of Pain. W. T. Black Jr., Memphis, Tenn.—p. 432.
Experience with Sauer's Vaccine in Prevention of Whooping Cough. F. T. Mitchell, Memphis, Tenn.—p. 440.

Acute Infectious Lesions of Intervertebral Disks.—Ghormley and his colleagues discuss the occurrence of a lesion of the spine which involves principally the intervertebral disks. There is a more or less severe febrile onset, denoting a primary or secondary infectious process as the underlying cause. In the American and English literature the cases are referred to as osteomyelitis of the vertebrae. The authors have observed several cases in which x-ray evidence of actual osteomyelitis was so slight as to furnish a reasonable doubt. Sternberg described similar cases under the name of "acute spondylitis infectiosa" and drew a clearcut picture of the difference between osteomyelitis of the spine and the condition under discussion. Infectious spondylitis usually follows typhoid or paratyphoid (typhoid spine) and may occur as a sequela to other infectious diseases, such as undulant fever. A definite knowledge of this condition exists, but no attempt has been made to distinguish it from osteomyelitis of the vertebrae. Twenty patients with infectious spondylitis have been seen at the Mayo Clinic. Fifteen were male and five female. The average age was 34.1 years, the youngest being 9 years and the oldest 59. The average duration of the acute symptoms was 21.6 weeks, the shortest six weeks and the longest two years. Twelve patients had a history of previous infections. In some the onset seemed to follow a mildly severe backache for from one to two weeks. A stage

was then reached in which the patient was severely ill. All the patients complained of pain. Fever was present at the time of onset in sixteen. There was a spasm of the lumbar or psoas muscles or both in eighteen, limitation of motion in seventeen and tenderness over the affected region in seventeen. Roentgenograms during the acute phase are usually normal, but when carefully followed a diminution in the thickness of one of the intervertebral disks appears. Followed over a period of months, increased thinning of the space and later proliferation of new bone along the margins of the involved vertebrae are observed. Finally solid bony fusion may be observed. In the earlier stages there may be some thickening of the paravertebral soft parts. This is not constant. If extensive vertebral involvement is present a diagnosis of osteomyelitis of the spine should be made, but when only the disk and the adjacent portion of the vertebral body are involved the condition is not true osteomyelitis. In the more advanced cases with obvious thinning of the disk in the roentgenogram the differential diagnosis is narrowed down to tuberculosis, post-traumatic thinning of the disks, typhoid spine, *Brucella abortus* or *melitensis* and congenital absence of disks or fusion. A diagnosis of tuberculosis is justified when the onset is slow and insidious with mild symptoms associated with tuberculosis of some other organ. In infectious spondylitis the onset is often more violent or it is preceded by some acute infectious process elsewhere and leads to a much more rapid and spontaneous healing, with fusion of the adjacent vertebrae as the usual end result. Osteomyelitis of the vertebrae in the more advanced stage presents a much more serious and prolonged disease than infectious spondylitis. Typhoid spine is almost if not exactly identical. *Brucella abortus* or *melitensis*, congenital absence of disks or fusion of vertebrae is usually readily recognized. The prognosis is excellent, both as to ultimate recovery with little or no disability and as to mortality. Only one of the authors' patients died. Two of the twenty patients have persistent symptoms. Two have not had any recent follow-up. Patients with fever, prostration and extreme pain must be treated symptomatically, sedatives being used until the diagnosis is established when a snugly fitted plaster of paris body cast on a Goldthwait frame is used to fix the spine during the acute phase of the disease. Pain will usually subside and after two or three months sufficient healing will have taken place to permit the use of a steel brace or a corset. Such support must be continued until the symptoms have cleared up, perhaps for a year or more. In cases of persistent pain, fusion has been advised but done in only one case.

Differential Diagnosis of Breast Tumors.—Scott points out that any cancerous involvement of the interlobular fascia, to which Cooper's ligaments are attached, may restrict the ligaments and skin when the tumor is moved in a position to make these fascial tissues tense; and the slightest pull or traction on them will produce depressions in the skin, shown by significant shadows when properly demonstrated. When a malignant tumor of the breast is slowly moved in certain positions until the submammary fascia is made tense the interlobular fascia also becomes tense, and through Cooper's ligaments the overlying skin is restricted in its movements. This restriction sometimes produces deep dimples and at other times shallow depressions, which if examined in direct light may go unobserved. In a darkened room, when rays of light strike a smooth surface at a perfect tangent depressions less than 0.3 mm. in depth will be shown. For many years diagnosticians have considered cutaneous adhesions and deep depressions or dimples as valuable and rather positive signs of cancer. Skin frankly adhered to a tumor and large depressions or dimples readily seen in a bright light falling directly on the breast while in repose are late signs of cancer and are of little if any more value for early diagnosis than the retracted nipple, palpable axillary nodes and definite adhesions to the deep fascia beneath the breast. Breast examinations should be made in upright and prone positions. While the cancer shadow test is being made the room should be darkened and the breast to be examined gently elevated while the tumor is manipulated into various positions. With each change of position, the spotlight (a pencil type) is slowly raised and lowered. When a feeling of tension is detected by the examining fingers, if a malignant growth is present the cutaneous depressions or flattened areas appear. They become quite

visible as the glancing light casts irregular shadows in proportion to the size and depth of the depressions. These depressions are magnified by shadows in the same manner as the uneven surfaces of a highway are made visible and magnified at night by shadows cast from the glancing lights of an automobile. Although cutaneous depressions as observed by magnified shadows are present in a high percentage of malignant breast tumors, they may be misleading when located within the areola or near its borders, as a short lacteal duct or a benign tumor of a duct may cast definite shadows with or without manipulation. Also surface depressions resembling cancer depressions may be observed in breasts which have been the site of a previous inflammatory process, severe trauma or an incisional scar. The shadow test has given the author negative results in so many benign tumors of the breast and positive assurance in so many early malignant cases that he has avoided biopsies in many instances that would have been considered absolutely necessary before simple mastectomy or radical amputation was carried out. The cancer shadow test is most significant as an early diagnostic aid and in his hands has reached a high degree of proficiency. Of 207 breast tumors ninety-nine were diagnosed as cancer and 108 as benign lesions prior to operation. Of the ninety-nine diagnosed as malignant ninety-one, as proved by microscopic examination, were correctly diagnosed. In the group of 108 diagnoses of benign lesions, ninety-eight were correctly diagnosed.

Southwestern Medicine, El Paso, Texas

24:115-148 (April) 1940

- Gastroscopy—Role in Private Practice: Review of 100 Cases. N. Giert, El Paso, Texas.—p. 115.
Incidence of Agglutinins for Typhoid, Paratyphoid and *Brucella abortus*. E. L. Breazeale and R. A. Greene, Tucson, Ariz.—p. 119.
Carcinoma of Anus, Rectum and Rectosigmoid. W. H. Daniel, Los Angeles.—p. 122.
Tuberculosis of Spine. M. G. Rosenbaum, Albuquerque, N. M.—p. 123.
Relapsing Fever. K. H. Thayer, Phoenix, Ariz.—p. 125.
Symptomatology and Etiology of Spontaneous Hypoglycemia. H. F. West, Los Angeles.—p. 128.

Texas State Journal of Medicine, Fort Worth

35:817-910 (April) 1940

- Bladder Tumors. H. H. Young, Baltimore.—p. 822.
Traumatic Rupture of Diaphragm with Medicolegal Aspects. P. R. Denman, Houston.—p. 825.
The Heart in Pregnancy. A. B. Pumphrey, Fort Worth.—p. 829.
Vomiting in Early Infancy: Its Causes and Treatment. R. L. Nelson, Wichita Falls.—p. 832.
The Ever Perplexing Thymus. R. Moore, Dallas.—p. 836.
Pulmonary and Bony Changes in Congenital Syphilis. D. H. McDonald and E. D. Sellers, Abilene.—p. 838.
Intensive X Radiation of Skin Lesions. T. B. Bond, Fort Worth.—p. 841.
Malignancy Originating in Middle Ear. F. P. Schuster and S. A. Schuster, El Paso.—p. 842.
Radiosensitive Lesion Associated with Pansinusitis. B. Woodson, Temple.—p. 845.
Handling of Compensation Eye Injuries. W. Lapat, Houston.—p. 847.
The Need for Organized Public Health Work in Texas. E. W. Prothro, Corpus Christi.—p. 854.
Public Health Goals in the United States. W. K. Sharp Jr., New Orleans.—p. 859.

Virginia Medical Monthly, Richmond

67:197-260 (April) 1940

- Approach to a Lump in the Breast. E. P. Lehman, University.—p. 197.
What Every Physician Should Know About Cancer of Cervix. W. Clarkson, H. Schmidt and Edith Miller, Petersburg.—p. 205.
Spleen Lying in Pelvis and Twisted on Its Pedicle: Case Report. W. L. Peple, Richmond.—p. 208.
Recent Progress in Control of Syphilis: Important Factor in the Future of Public Health. A. J. Aselmeyer and I. V. Sollins, Washington, D. C.—p. 210.
Motor Aphasia, Agraphia and Stammering Following Use of Sulfanilamide. W. H. Higgins, Richmond.—p. 216.
Ocular Findings in the Newborn: Preliminary Study. F. D. Costenbader, Washington, D. C.—p. 217.
Severe Diabetes Mellitus: Emphasis on Insulin Therapy in Coma, Infections and Preparation for Operation. H. Walker, Richmond.—p. 222.
Endocrine Disorders in Childhood. C. W. Dunn, Philadelphia.—p. 225.
Present Status of Our Understanding of Convulsive Disorders. D. C. Wilson, Charlottesville.—p. 235.
Endocrinology Briefs: The Testes. J. P. Lynch, Richmond.—p. 238.
Male Sex Hormones in Treatment of Testicular Deficiency: Case Report. A. I. Dodson, Richmond.—p. 240.
Doctors of Yesteryears in Northampton and Accomack Counties. Mary Macon Aylett Fitzhugh, Machipongo.—p. 242.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Rheumatic Diseases, London

2:1-74 (April) 1940

- Review of Recent Italian Work on Rheumatism: II. Chronic Rheumatism. P. Ravenna.—p. 1.
Recent Investigations on Rheumatism and Arthritis in the United States. P. S. Hench.—p. 19.
Tuberculin Reactions in Ankylosing Spondylitis Compared with Those in Other Rheumatic Diseases. G. Robinson.—p. 41.
Splenectomy in Treatment of Rheumatoid Arthritis: Report of Three Cases. F. Bach and O. Savage.—p. 47.
Spontaneous Polyarthritis of Rats and Syndrome Induced by Inoculation of Human Material in These Animals. W. A. Collier and G. J. Staverman; translated by G. J. Pether.—p. 58.

British Heart Journal, London

2:63-140 (April) 1940

- Congenital Aneurysms of All Three Sinuses of Valsalva. R. H. Micks.—p. 63.
A Single Coronary Artery. E. S. J. King.—p. 79.
*The Electrocardiogram in Pellagra. F. Mainzer and M. Krause.—p. 85.
Effect of Electrodes Made of Different Metals on Skin Currents. E. W. Marchant and H. W. Jones.—p. 97.
PR Segment in Hypertensive Heart Disease. L. Hahn.—p. 101.
Syndrome of Short PR Interval, Apparent Bundle Branch Block and Associated Paroxysmal Tachycardia. A. Hunter, C. Papp and J. Parkinson.—p. 107.
Atypical Pain in Angina Pectoris and Myocardial Infarction. J. D. Spillane and P. White.—p. 123.
Action of Digitalis in Heart Failure with Normal Rhythm. P. Wood.—p. 132.

Electrocardiograms in Pellagra.—Mainzer and Krause made electrocardiograms of twenty-three (fifteen men and eight women) pellagra patients. In twenty-one of these the disease was chronic and in two acute. Nine of the patients were more than 50 years of age. This is of some significance as the possibility of cardiographic changes due to coronary sclerosis increases with advancing age, even without clinical symptoms. Patients with clinical circulatory symptoms were excluded from investigation. The electrocardiograms were taken immediately after the patient's admission to the hospital; records of eleven additional patients were taken once or more during their stay in the hospital. Among the abnormalities observed, the most frequent was sinus tachycardia, which occurred in about one third. Alteration of the ST interval and of the T wave were present in the thirteen pathologic records. The records of the other ten were normal. In six of the abnormal records there was deformation of the ventricular complex (low voltage or notching). The observations show no features characteristic of pellagra. However, two clinical arguments favor the assumption that the disturbances have some causal relationship with pellagra. The first is the high incidence of pathologic electrocardiograms in pellagrins with an otherwise normal circulation. This holds true even when it is remembered that in older persons such changes may result from coronary sclerosis without clinical symptoms and that half of the patients with a pathologic electrocardiogram were more than 50 years of age. An abnormal electrocardiogram of one pellagrous woman of 23 was obtained. This patient subsequently died of the disease. The second and decisive proof is furnished by the fact that the pathologic electrocardiogram returned to normal with cure of the pellagra or paralleled the improvement of the disease. Such an occurrence could scarcely be expected if the changes were due to coronary sclerosis (apart from the occurrence of acute infarction). Other irreversible heart disorders that might have induced the electrocardiographic symptoms were ruled out by clinical observations. Shortening of the conduction time which is rather characteristic of beriberi in the cardiograms of some pellagrins justifies the assumption that, similarly to the peripheral neuritis in pellagra, this symptom is brought about by the deficiency in vitamin B₁.

British Journal of Dermatology and Syphilis, London

52:107-140 (April) 1940

- Environment and Skin Disease. F. F. Hellier.—p. 107.
Some Observations on Sugar Metabolism in Acne Vulgaris and Its Treatment by Insulin. H. C. Semon and F. Herrmann.—p. 123.
Colliers' Stripes—the Coal-Miners' Dermatitis. F. R. Bettley.—p. 129.

British Medical Journal, London

1:559-600 (April 6) 1940

- Partition of Potassium in Stored Blood. C. B. B. Downman, J. O. Oliver and I. M. Young.—p. 559.
Three Thousand One Hundred and Forty-Four Consecutive Deliveries Without a Maternal Death Due to Pregnancy. R. C. Thomas.—p. 562.
Some Seasonal Changes in Pituitary Gland of Eel. H. M. Evans.—p. 565.
Operative Treatment of Inguinal Hernia: Results Obtained in Adult Males by Fascial Suture Technic. W. Gray.—p. 568.
Incomplete Fracture of Femoral Neck in Case of Infantile Coxa Vara. H. J. Burrows.—p. 569.

Journal Obst. & Gynaec. of Brit. Empire, Manchester

47:1-108 (Feb.) 1940

- Chorionepithelioma. Naguib Pasha Mahfouz and Mahmoud Ismail.—p. 1.
Endometrioma Interstitiale: Preliminary Report. J. R. Goodall.—p. 13.
Female Genital Hypoplasia. S. R. Meaker.—p. 40.
Pathology of Acute Yellow Atrophy and Delayed Chloroform Poisoning. H. L. Sheehan.—p. 49.
Changes in Blood Concentration in Normal and Toxic Pregnancy. M. D. Crawford.—p. 63.
Splenic Anemia, or Banti's Syndrome, and Pregnancy: Account of Case. Josephine Barnes.—p. 80.

Lancet, London

1:677-724 (April 13) 1940

- Mental Illness as Clue to Normality. S. Taylor.—p. 677.
*Prevention of Mastoiditis: Survey of 621 Cases of Acute Otitis Media Treated with Sulfanilamide. V. G. Horan and S. G. French.—p. 680.
The Therapeutic Pool. M. B. Ray.—p. 683.
Effects of Some Preservatives on Stored Blood. F. X. Aylward, B. R. S. Mainwaring and J. F. Wilkinson.—p. 685.
Hyperemia as a Test of Male Sex Hormone. E. Steinach and H. Kun.—p. 688.
Acute Subdural Hematoma. N. L. Eckhoff.—p. 689.
Probable Chorionepithelioma in a Virgin of 71. G. Maizels.—p. 690.
A New Way to Determine Bleeding Time. H. A. E. v. Dishoek and L. B. W. Jongkees.—p. 692.

Prevention of Mastoiditis.—Horan and French review 621 cases of suppurative otitis media treated with sulfanilamide. The patients were given an emulsion of sulfanilamide by mouth in full doses according to age and weight. Medication was continued to a total dose of 40 Gm. Often the ear recovered before the maximal dose had been reached. Parenteral administration of azosulfamide was resorted to when it was thought advisable to reach the maximal concentration in the minimal time. Sulfapyridine was substituted for sulfanilamide if pneumococci were isolated. Many patients were treated as outpatients under constant supervision. No serious toxic manifestations were seen. The incidence of mastoiditis was only 3.4 per cent, compared with 22.7 per cent before the introduction of sulfanilamide therapy. The authors urge that all patients with acute suppurative otitis media be given sulfanilamide or sulfapyridine, because this will greatly reduce the incidence of mastoiditis and will allow a more conservative attitude to be adopted once mastoiditis develops.

Medical Journal of Australia, Sydney

1:429-460 (March 30) 1940

- Gas Tensions in Tissues. E. W. Sibree.—p. 429.
Treatment of Obesity in General Practice. M. Kelly.—p. 435.
War Wounds of Head. R. A. Money.—p. 443.

1:461-500 (April 6) 1940

- Report on Epidemiology of Rheumatic Infection in South Australia. Central Board of Health of South Australia.—p. 461.

Chinese Medical Journal, Peiping

57:101-200 (Feb.) 1940

- Role of Vitamin D in Calcium Metabolism in Osteomalacia. S. H. Liu.—p. 101.
Acute Agranulocytosis in Kala-Azar. C. H. Huang.—p. 119.
Total Urinary Excretion of Estrogens During Menstrual Cycles of Six Normal Women. Hazel Ai Ch'ün Lin.—p. 141.
Common Bluebottle Fly, Chrysomya Megacephala, as Carrier of Pathogenic Bacteria in Peiping, China. C. Y. Chow.—p. 145.
Incidence of Hemolytic Streptococci in Throats of Hospital Nurses: Its Bearing on Control of Puerperal Sepsis. A. E. Towers, H. Wei and H. Yü.—p. 154.
Causal Relationship Between Epidermophytosis of Feet and Recurrent Erysipelas and Elephantiasis of Legs. K. L. Yang.—p. 161.
Heavy Infestation by Ascaris Lumbricoides: Two Cases. H. F. Hsü, Y. C. Fan, C. C. T'an and K. Y. Ch'in.—p. 168.
Echinococcus Granulosus in Szechwan. T. H. Williams.—p. 176.

Presse Médicale, Paris

48:345-360 (April 3-6) 1940

- *Causes of Failure of Nerve Sutures and Suggested Remedies. R. Leriche.—p. 345.
 Bronchospasm and Bronchorelaxation. L. Binet and M. Burstein.—p. 348.
 Electrocardiography. E. Donzelot and B. Ménétrel.—p. 350.
 Vagino-Endocervicitis Caused by Bismuth. C. Simon.—p. 351.

Causes of Failure of Nerve Sutures.—Leriche believes that nerve suture fails in many instances because of excessive shortening of the nerve. He stresses the necessity of preserving local circulation. Efforts must be made to prevent muscle atrophy, bone rarefaction, deformity of joints and contracture of ligaments. Sutures that are on tension are inadvisable. When the distance to span is considerable, better results will be obtained by the use of a nerve graft. Maintenance of the soft parts deprived of nerve supply and sympathetic infiltrations are auxiliary measures worthy of attention.

Giornale Veneto di Scienze Mediche, Venice

14:129-192 (March) 1940. Partial Index

- *Frequency of Coronary Branch of Right Coronary Artery. G. Tirelli.—p. 149.
 *Cervical Ribs: Clinical and X-Ray Study. M. Belgrano.—p. 155.

Frequency of Accessory Right Coronary Artery.—Tirelli examined in the Civil Hospital of Venice 130 hearts of dead fetuses and of cadavers from birth to the age of 85. He found an accessory right coronary artery in fifty-eight. The right marginal artery was either atrophic or nonexistent in such hearts. The accessory coronary artery had its origin in the intima of the aorta on the left side of the normal right coronary artery, which it paralleled in its course downward along the auriculoventricular sulcus, pursuing the course of the right marginal artery and terminating on the diaphragmatic surface of the right ventricle. The caliber of the accessory artery was like that of the marginal artery. The author believes that the accessory artery is the right marginal artery with an abnormality at its point of origin. It comes off directly from the aorta instead of from the right coronary artery as the right marginal artery does. The existence of the accessory artery is of anatomopathologic importance. It may be obliterated by syphilitic or arteriosclerotic alterations because of its small caliber and cause symptoms similar to those of coronary occlusion.

Cervical Ribs.—Belgrano studied thirty-one cases of cervical rib and six of hypertrophy of the transverse process of the fourth cervical vertebra. There were thirty female and seven male patients. Trauma was the cause in six. Vascular or neurologic manifestations were present in all but six. The most frequent symptoms were unilateral or bilateral pain in the shoulder and arm, frequently associated with muscle atrophy, neck pain, formication, paresthesias, variations in the local temperature and other sensory, motor and vascular disturbances. Acute headache was the predominant symptom in one and cough in five. There was paresis of the dome of the diaphragm in three cases and paralysis of vocal cords in one. The arterial blood pressure was diminished on the involved (or predominantly involved) side as compared with the normal side. The roentgenograms demonstrated the condition to be bilateral in twenty-one cases.

Archiv für klinische Chirurgie, Berlin

198:1-360 (Feb. 5) 1940. Partial Index

- Microscopic Examination of Fractures of Neck of Femur After Surgical Intervention. F. Felsenreich.—p. 4.
 Treatment of Open Bone Fractures of Extremities with Special Reference to Drainage and Tamponade. P. von Fuky.—p. 48.
 *Krukenberg Tumors. O. Bittmann.—p. 103.
 *Effect of Laparotomy on Peritoneal Absorption, a Study of Increasing Resistance of Peritoneum by Preliminary Operation. L. Rathcke.—p. 169.
 *Report on Eight Hundred and Eighty-Three Cases of Carcinoma of Stomach Treated During 1921-1932. K. Weese.—p. 202.

Krukenberg Tumors.—In connection with three carefully analyzed cases of ovarian growth diagnosed as Krukenberg tumor, Bittmann discusses their pathogenesis. Solid ovarian tumors were found bilaterally in two of the patients (unmarried,

aged 22 and 25 years). In addition, roentgenoscopy disclosed an intersellar tumor in the patient 25 years old. In the third patient (an octipara aged 60 with an unbroken history of normal deliveries) a neoplastic growth was found only in one ovary; the other ovary showed senile atrophy. However, a solid neoplasm as large as a man's fist was discovered at the pylorus. Microscopic examination of the ovarian tumor demonstrated the presence of "seal ring" cells of a pronounced epithelial character. No tumor cells were found in the lymph nodes. The author regards Krukenberg tumor as predominantly, if not entirely, a malignant primary neoplasm, related to multiple carcinomas. He does not think that they represent metastases either originating in the digestive tract or by way of the lymph nodes. Experiments with single and double tumor cell implantation in a large number of white rats confirmed his hypothesis of a multiple carcinoma. Coexisting tumors wage war on each other which tends to prolong the life of the harboring host, but the removal of one of these at once activates the other into an intensified malignant course at the expense of the host. The long latency of the coexisting solid tumor with no suggestive symptomatology not only argues against the view of carcinomatous metastasis but marks the prognosis of the disease as invariably unfavorable. Radical operations should be followed up with roentgen therapy.

Peritoneal Absorption After Laparotomy.—Rathcke studied in animal experiments and in man the effects of laparotomy on the defense mechanisms of the peritoneum against bacterial infection, especially on the peritoneal absorption. Intraperitoneal injections of trypan blue in guinea pigs showed that laparotomy at first retarded absorption but that, beginning with the second day, absorption was accelerated and continued so for fourteen days. That this increased absorption was due to the enlargement of peritoneal lymph channels was clearly observable in hydrogen peroxide tests. The same enlargement of lymph channels was observed also in the parietal peritoneum of laparotomized animals. Trypan blue was absorbed more readily on the first and second day after laparotomy. Laparotomized animals, on the average, lived three times as long as nonlaparotomized, manifesting increased bactericidal resistance. The stimulation of peritoneal lymph channels and augmented absorptivity could likewise be observed in a number of gastrointestinal ulcer cases selected because no inflammation nor fluid secretions were noted after the first operation. Amniotic and ascitic fluids and physiologic solution of sodium chloride were effective in modifying the lymph channels of the parietal peritoneum and thus increasing immunity. The author concludes that an abdominal operation performed in two stages not only decreases the danger of postoperative peritonitis but increases the patient's resistance for the second and more serious surgical act. This should take place between the fourteenth and twenty-first day after the first laparotomy.

Carcinomas of Stomach.—Weese presents an analysis of 883 carcinomas of the stomach, observed in a university clinic during the course of twelve years. The patients, largely drawn from the rural population, consisted of 586 men (66.36 per cent) and 297 women (33.64 per cent), of whom the youngest was 17 years of age. The predominant disease incidence was in the sixth decade with 221 men (25.08 per cent) and 138 women (15.36 per cent). Only fifty-seven carcinomas (6.45 per cent) occurred below the age of 40. In 530 cases (60 per cent) either no operation (fifty-four) could be performed or palliative measures were adopted, such as jejunostomy (seventy-seven), gastrostomy (forty-two) exploratory laparotomy (124), roentgen therapy alone (thirty-six) and gastro-enterostomy (189). The average span of life, dating from the onset of the symptoms, was 8.73 months for those not operated on, with an average of from four to five months more for those on whom gastrostomy and gastro-enterostomy had been performed. In the remaining 353 cases (40 per cent), consisting of 208 men and 147 women, the second operation of Billroth was performed 339 times and the first operation of Billroth eleven times, chiefly for a pyloric carcinoma (193 cases, equivalent to 54.67 per cent) and for prepyloric carcinoma (seventy-eight cases equivalent to 22.09 per cent). Simple resection requiring the removal of a few adhesions and glandular metastases was done in 225 cases (63.74

per cent), complicated and palliative resection in 128 cases (36.26 per cent). Complicated cases involved chiefly the mesocolon (twenty-four cases) and the pancreas (nineteen); palliative intervention concerned cases in which not all carcinomatous growth and metastases, largely glandular or hepatic, could be removed. Ninety-three postoperative deaths occurred in the resected group, largely from peritonitis (forty, or 45.4 per cent) and pulmonary complications (twenty-eight, or 30.11 per cent). Of the surviving 260 patients, 193 died within five years; sixty-seven lived more than five years (in fifty-six of these cases simple resection had been performed). Jejunostomy showed the highest postoperative mortality. Roentgen treatments with massive single or fractionated doses employed in cases in which operation could not be performed did not prolong life; however, roentgen therapy in postoperative cases seemed to contribute to prolongation. Palliative measures had only an insignificant effect on the duration of life. Prognosis was more favorable in women than in men and in carcinomas of the cylindric cell type.

Beiträge zur Klinik der Tuberkulose, Berlin

94:309-376 (Feb. 21) 1940. Partial Index

Use of Spirograph and Ergometer in Appraising Functional Efficiency of Lung, Heart and Circulation. H. Rothkopf and K. Linxweiler.—p. 309.

New Instruments for Thoracocautery. G. Herholz.—p. 326.

Tests with Gelatinated Blood Serum of Tuberculous Persons. J. Geszti and F. Pongor.—p. 334.

*Five Hundred and Eighty-Seven Thoracoplasties Observed for Seventeen Years or Less. Steglich.—p. 351.

Five Hundred and Eighty-Seven Thoracoplasties.—Steglich's report is a comparative evaluation of data furnished by a number of hospitals and sanatoriums in response to a questionnaire regarding thoracoplasties performed on tuberculous patients. The observations cover a period of seventeen years, varying with the individual case, and affect the age level between 8 and 56 years. The dominant points of view controlling the analysis are the extent to which life was preserved by total and partial thoracoplasty, the number of healed lesions and the extent of restoration to occupational usefulness. Total thoracoplasty with resection of eleven ribs was performed in 230 cases and constituted the leading surgical method until it was surpassed in 1933 by the eight rib surgery of the upper thorax, performed in sixty-five cases. A remarkably high mortality was noted for total (eleven rib) thoracoplasty, 115 (50 per cent) of the 230 patients dying as compared with sixteen deaths (27.1 per cent) out of sixty-five for the eight rib resection and thirteen deaths (21.3 per cent) out of sixty-one cases for subtotal (ten rib) operation. The mortality rate was highest in the first two years, especially the first, 97 per cent of the men and 94 per cent of the women dying from tuberculosis or postoperative complications. After these two critical years the death rate for men is highest in the seventh year and for women in the ninth. Of 342 persons operated on and alive in 1936 (165 men, 177 women) 210 showed healed lesions (men 59.1 per cent, women 65.5 per cent), respectively 61.4 per cent of the living and 36.4 per cent of all patients operated on. Small cavitations and unilateral infections showed greater susceptibility to improvement. Of those living, 54.2 per cent, equivalent to 31 per cent of those operated on, were occupationally restored or rehabilitated, with unskilled labor and farm workers at a disadvantage. Figures for the economic rehabilitation of the women impair statistical calculations because a large percentage did domestic work at home. Four of the five women who later gave birth to children were reported in good health. According to the author the proper appraisal of the success of thoracoplasties should, on the average, allow five years for vitality rate evaluation and from six to seven years for the healing of lesions. Operations offer best prognosis if performed within the 20 to 40 year age level; open lesions, however, existing for more than twelve years present a predominantly unfavorable outlook. The therapeutic value of thoracoplasties must be judged not only by the number of lives saved but by the number of open lesions that become bacillus negative and furthermore by the fact that the mortality rate is only from 40 to 50 per cent instead of from 80 to 90 in cases of open infection.

Kinderärztliche Praxis, Leipzig

11:73-112 (March) 1940

Skull Fractures in Nurslings. H. Dierker.—p. 73.

Effect of High Altitude Flights on Pertussis of Children. Magdalene Schütte.—p. 77.

*Clinical Course of Diphtheria in Actively Immunized Children. L. Herding.—p. 86.

Active Antidiphtheria Immunization in Children.—Herding reports the successful use of antidiphtheria vaccination in 700 children between the ages of 2 and 14 years, in whom only twenty (3 per cent) developed the infection but recovered. The children were inmates of a children's home and had been under observation for two years at a time when no epidemic occurred either in the home or in the vicinity. Eighteen cases presented diphtheria positive smears at the outset. Inoculation took place, on the average, from four to five weeks before infection set in; dosage consisted of from 4,000 to 8,000 antitoxin units with the exception of one case, in which 16,000 units was administered. The children exhibited little or no local reaction to the first treatment or in most cases to the second. Seventeen of the twenty cases were light attacks and progressed favorably, although four of them were complicated by scarlatina, bilateral otitis, diphtheric otitis media or scrofulosis. No cardiac or circulatory disturbances of consequence were noted. In three cases recovery was delayed. The single serious case was one of myocardial involvement and paresis of one leg. The author calls particular attention to the fact that in sixteen of the twenty cases tonsillar pathologic change was not typical of diphtheria. Only three patients exhibited typical foci; the fourth, an atypical coating that developed into a diphtheric membrane. The appearance of the tonsils was likewise not typical for diphtheria but was of a dirty grayish yellow. He regards the low incidence rate as a positive result of an active immunization.

Wiener klinische Wochenschrift, Vienna

53:145-164 (Feb. 23) 1940

Acute Atrophy of Liver Without Icterus. O. Satke.—p. 145.

*Effect of Thyroidectomy on "Oxygen Debt" After Exercise Tests in Heart Diseases. H. Siedek.—p. 147.

Antirabies Inoculation: Report of State Institution in Vienna for 1927-1938. W. Piringer.—p. 150.

Thyroidectomy and "Oxygen Debt" in Heart Disease.—According to Siedek, total ablation of the thyroid in eight selected cases of cardiac insufficiency was found to reduce the relative "oxygen debt." By relative oxygen debt is meant the quantity of oxygen used during the second to the seventh minute after cessation of effort in exercise tests. Oxygen consumption was measured both before and after total thyroidectomy. The procedure was carried out in the morning after bed rest and before food ingestion. The patients ascended a certain number of steps within a specified time. The Douglas sac method and Haldane's apparatus for determining oxygen values were employed. A significant oxygen reduction from 210 to 90 per cent was noted in one case. The diminution of oxygen consumption was accompanied in all cases by an improvement in subjective symptoms. The author believes that cardiac sufficiency is more adequately determined by measurements made after cessation of effort during the ensuing rest period than by measuring the increased consumption of oxygen during effort.

Zeitschrift f. Geburtshilfe u. Gynäkologie, Stuttgart

120:105-248 (March 8) 1940

Pathologic Anatomic Contributions to Kehr's Monography: Intracranial Hemorrhages in the Newborn. R. Beneke.—p. 105.

Can the Gonadotropic Hormone of the Anterior Lobe of the Hypophysis Cause Demonstrable Hereditary Impairment in White Mice? H. Jörg.—p. 147.

*Extra-Uterine Pregnancy in Tissue Behavior of Uterine Mucosa and in Diagnosis of Curettage Material. H. Willer.—p. 193.

Electrocardiographic Studies on Pregnant, Parturient and Puerperal Women. A. Róna.—p. 220.

Experimental Contributions to Pathogenesis of Septic Thrombosis. I. Györfi.—p. 237.

Curettage in Extra-Uterine Pregnancy.—Willer cites two cases which illustrate the diagnostic value of the microscopic examination of the curettage material. Changes observed in 161 curettage specimens are presented. Curettage had been

performed in some of the cases because extra-uterine pregnancy was suspected and in others for different reasons. Study of the curettage material either confirmed or ruled out extra-uterine pregnancy in all but twenty-two cases. In the latter, erroneous results were obtained. Ten of these cases were "no failures" in the sense that the microscopic appearances contradicted an extra-uterine pregnancy when one did exist. In the other twelve, the "yes failures," the curettage material erroneously indicated the presence of an extra-uterine pregnancy. The author concludes that the microscopic examination of the curettage material does not furnish definite proof of an extra-uterine pregnancy; conversely, there is no microscopic appearance which permits the exclusion of an extra-uterine pregnancy. The author enumerates tissue changes in curettage material found in normal pregnancy, in abortion after intra-uterine pregnancy, and in extra-uterine pregnancy. A comparison of the state of the decidua, of the presence or absence of inflammation, of fibrinoid necrosis and of changes in the vascular walls, in the epithelium and in the pregnancy glands reveals that there are no definite signs to permit a differentiation. Doubtful cases are sufficiently numerous to justify a microscopic examination.

Maandschrift voor Kindergeneeskunde, Leyden

9:217-262 (March) 1940

Diagnostic Difficulties in Case of Bronchial Polyp. P. G. Gerlings.—p. 217.

Developmental Disturbances of Fetus Caused by Amniotic Strands. R. J. Harrenstein.—p. 231.

Peculiar Bone Disease: Morquio's Disease: Case. H. Broekema.—p. 240.

*Results of Administration of New Anticonvulsive Preparation Epanutin (Dilantin Sodium). A. K. A. Gijssberti Hodenpijl.—p. 252.

Therapeutic Results of Dilantin Sodium.—Gijssberti Hodenpijl describes the results obtained with dilantin sodium in ten children with epileptiform attacks resulting from trauma at birth, encephalitis and meningitis, or with pyknolepsy or salaam convulsions. The children varied in age between 5 months and 9 years. The smallest daily dose was 50 mg. and the largest 400 mg. Convulsions disappeared in six children; in one the treatment failed, presumably because the doses were too small; in the other three the frequency of the attacks decreased at first but later the medication was no longer effective. Signs of intoxication in the form of somnolence, vomiting and diarrhea appeared in five, and an urticaria-like exanthem developed in one. These symptoms were temporary. Results did not come up to the author's expectations. The secondary effects were not as negligible as earlier reports had indicated. He suggests that with continuous use they might become less noticeable, as indicated by several of his cases.

Acta Medica Scandinavica, Stockholm

103:201-500 (March 8) 1940. Partial Index

*Effect of Serum Therapy in Diphtheria: Principles and Results of Treatment of 15,448 Patients in the Blegdam Hospital, Copenhagen, During the Period of 1920-1934. V. Bie.—p. 201.

Calcium Requirements of Older Male Subjects with Special Reference to Genesis of Senile Osteoporosis. E. C. Owen, J. T. Irving and A. Lyall.—p. 235.

*Problem of Fetal Function of Thyroid Gland. H. Zondek.—p. 251.

Cholesterol Content of the Blood Serum in Thyrotoxicosis. K. Brächner-Mortensen and E. Möller.—p. 259.

Further Observations on Pathogenesis of Peptic Ulcer. E. Ask-Upmark.—p. 280.

*Significance of Tubercle Bacilli Demonstrable in Nodules of Erythema Nodosum. A. Wallgren and A. Gnosspelius.—p. 341.

Attempt to Analyze Tuberculin Anergy in Schaumann's Disease (Boeck's "Sarcoid") and Uveoparotid Fever by Means of BCG Vaccination. R. Lemming.—p. 400.

Tonsillectomy in Emergency Treatment of Angina Granulocytopenic States. Ö. Holsti, Y. Meurman and M. Virkkunen.—p. 430.

Serum Therapy in Diphtheria.—Bie analyzes observations on 15,448 patients with pseudomembranous pharyngeal diphtheria treated at the Blegdam hospital, Copenhagen, during the period 1920-1934. In 72 per cent the disease was mild, in 22 per cent of moderate severity and in 6 per cent severe. Toxic symptoms were frequent in the severe form of diphtheria. Ninety-five per cent of this group had fetor, 84 per cent periglandular edema, 29 per cent hemorrhagic diathesis and 53 per cent albuminuria. The following principles were adhered to in the treatment: 1. Serum was injected as soon as possible after the diagnosis

had been made. 2. The entire quantity of serum was given in one or, at the most, in two doses. 3. A large portion was injected intravenously, the remainder intramuscularly. 4. The severe cases were treated with a large dose, approximately 200,000 units of antitoxin. The author gained the impression that nothing is to be gained by administering more than from 200,000 to 300,000 units. The average mortality rate for the entire material was 2.6 per cent, but, disregarding the patients who died within the first twenty-four hours after hospitalization, it was 1.9 per cent and for the three groups of cases (mild, moderate and severe) it was 0.05, 2.9 and 21.4 per cent, respectively. It was found that 20 per cent of the severe cases occurred in children of 4 years or less, 48 per cent in children of the age group from 5 to 9, 20 per cent in those of the age group 10 to 14 and 12 per cent in persons over 15 years of age. The mortality was greatest among children of the first five years of life.

Functions of Fetal Thyroid.—Zondek reports a case of myxedema in which a woman after two years of treatment with thyroïdin became pregnant and gave birth to a normal child. Thyroïdin controlled her symptoms during the three first months of gestation. The heart, however, showed slight dilatation of the left ventricle, flattening of the PT deflection and lowering of the RS complex as the first indication of a beginning relapse. Since these changes became apparent during thyroïdin treatment, it was believed that the pregnancy had an injurious effect on the maternal thyroid. Thyroïdin treatment was now discontinued but, contrary to expectation, no further symptoms appeared up to the period after delivery. In the ninth month of gestation the basal metabolic rate was minus 1 per cent. The heart showed the same aspects as ascertained in the third month. Shortly after delivery, however, typical symptoms of myxedema reappeared (marked puffiness of the face, swelling of the eyelids, hands and feet, low and rough voice). Six weeks after delivery the basal metabolic rate was minus 29 per cent and the typical myxedema heart was now present. Thyroïdin treatment was again administered and improvement of all these symptoms took place once more. Zondek believes that the relapse after termination of pregnancy must be associated with the fact that substititutional activity of the fetal thyroid gland which existed during the last months of pregnancy was no longer present.

Tubercle Bacilli in Nodules of Erythema Nodosum.—Erythema nodosum has been in the past regarded as a non-specific allergic phenomenon and this opinion is accepted by the majority of pediatricians and dermatologists. Wallgren and Gnosspelius made bacteriologic studies of the nodules of erythema nodosum of twenty-eight children giving a positive tuberculin reaction. In the majority of cases the efflorescences were excised from twenty-four to forty-eight hours after their appearance. The tissue was ground under aseptic conditions, treated for twenty minutes at a temperature of 37 C. with a 4 per cent solution of sodium hydroxide, centrifuged, and neutralized with hydrochloric acid. Cultures and inoculations into guinea pigs were made. The majority of the animals were tuberculin tested before and about two months after the inoculation. The animal test was positive in only one of the twenty-eight cases. The authors cite similar experiments of other investigators in which out of 113 cases positive results were obtained in four. The authors feel that the question whether the presence of tubercle bacilli proves that the erythema nodosum nodule is a specific tuberculous and local process must be answered in the negative. They cite cases giving a negative as well as cases giving a positive tuberculin reaction. They stress that the eruption of erythema nodosum is clinically and anatomically identical in the two cases although the allergy provoking agent is perhaps different. The evolution of an erythematous eruption and the histologic structure of the nodule are not identical with the specific tissue changes produced by the tubercle bacillus. Even if the tubercle bacilli were constantly demonstrable in the nodules, the structure of the erythematous exanthem would indicate that the mode of reaction to the tuberculous virus is entirely different than under ordinary conditions. This different mode of reaction is determined by allergy. Because the bacilli are encountered exceptionally, it must be doubted that they usually are concerned in the development of the nodule. Their presence must be regarded as an accidental manifestation.

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REGURGITATION JAUNDICE

CLINICAL DIFFERENTIATION OF THE COMMON
FORMS, WITH PARTICULAR REFERENCE TO
THE DEGREE OF BILIARY OBSTRUCTION

C. J. WATSON, M.D.

MINNEAPOLIS

The recognition of two main varieties of jaundice, namely retention and regurgitation jaundice according to Rich's classification,¹ is of fundamental value. The presence of bilirubin in the urine, likewise the finding of a prompt van den Bergh reaction, at once identifies regurgitation jaundice and separates it from retention jaundice, in which there is simply a hepatocellular inability to dispose of bilirubin provided from the circulating blood. In retention jaundice hepatocellular function may be regarded as sluggish as far as bilirubin excretion is concerned.² This sluggishness is more or less relative in hemolytic icterus (one of the principal representatives of the retention type) but must be considered absolute in the rare condition best known as constitutional hepatic dysfunction.³ In retention jaundice bilirubin alone is held back and accumulated, while in regurgitation jaundice there is the fundamental difference that whole bile returns to the blood. There is much reason to believe that this regurgitation of bile occurs in one of two ways:⁴

1. There is increased intrabiliary pressure due to obstruction of the bile ducts from one cause or another. Rhexis of the small biliary radicles, particularly of the weaker, ampullary portions of the bile capillaries results, and the bile thus gains access to the adjacent lymph spaces.⁵

2. There is increased permeability of the bile capillaries with leakage or diapedesis of bile into the lymph spaces. Again it appears that the ampullary portions

of the bile capillaries are the areas most susceptible of injury and hence the chief sites of increased permeability and regurgitation. Injury of this type is undoubtedly caused by a great variety of poisons and toxins. Among others, toluylenediamine, neoarsphenamine, cinchophen and sulfanilamide may be mentioned.

The separation of jaundice into retention and regurgitation types, while thus of fundamental importance, is not adequate for purposes of clinical diagnosis and management of patients. Regurgitation jaundice is characteristic of any severe diffuse liver damage. It is equally characteristic, however, of biliary obstruction due to common duct stone or to cancer. The diverse management of these conditions requires that regurgitation jaundice be subdivided into three main groups: (1) cancerous, (2) calculous and (3) parenchymal types. In my experience, based on the material to be discussed, this subdivision of regurgitation jaundice has been of much value especially from a practical standpoint. It is true that there are certain causes of regurgitation jaundice, such as benign stricture of the common duct, chronic pancreatitis and benign tumor and cysts, which are not readily included in these subdivisions and require individual consideration. The vast majority of cases encountered, however, can be so classified without difficulty. My purpose in this report is to summarize experience with various means of differentiating the three main groups of regurgitation jaundice, with particular reference to urobilinogen excretion. This experience has been gained during the past seven years, in which somewhat more than 300 cases of jaundice of all types have been observed.

MATERIAL AND METHODS

The cases composing the material for the present study were divided as follows:

1. Cancerous jaundice, sixty-seven cases.

(a) Primary or metastatic cancer in the biliary tract causing obstruction of the common bile duct, the common hepatic duct, or of both right and left hepatic ducts, fifty-eight cases, as follows:

Carcinoma of head of pancreas, twenty-three.

Carcinoma of common bile duct, eleven.

Carcinoma of cystic duct involving common duct, one.

Carcinoma of gallbladder extending into common duct, three.

Carcinoma metastases in common duct or liver involving main hepatic ducts, nine.

Carcinoma having origin in biliary tract, exact primary site not determined, nine.

Malignant melanoma metastases to common bile duct (polypoid type), one.

Retroperitoneal sarcoma involving common bile duct, one.

(b) Diffuse or very widespread nodular metastatic carcinoma of the liver, nine cases. (As will be noted, the jaundice in these instances was moderate or slight, and in general the clinical features were often more like those of parenchymal jaundice.)

From the Division of Internal Medicine, University of Minnesota Hospital.

Read in part as a clinical lecture before the meeting in celebration of the fiftieth anniversary of the founding of the University of Minnesota Medical School, Oct. 12, 1939.

1. Rich, A. R.: The Pathogenesis of the Forms of Jaundice, *Bull. Johns Hopkins Hosp.* 47: 338 (Dec.) 1930.

2. Watson, C. J.: The Pyrrol Pigments with Particular Reference to Normal and Pathologic Hemoglobin Metabolism, in Downey, Hal: *Handbook of Hematology*, New York, Paul B. Hoeber, Inc., 1938, vol. 4, chapter 35, p. 2447.

3. Rozendaal, H. M.; Comfort, M. W., and Snell, A. M.: Slight and Latent Jaundice: The Significance of Elevated Concentrations of Bilirubin Giving an Indirect van den Bergh Reaction, *J. A. M. A.* 104: 374 (Feb. 2) 1935. Watson.²

4. Itoh, Tadasu: Experimentelle Studien über die Pathogenese des Toluylenediaminikterus, *Beitr. z. path. Anat. u. z. allg. Path.* 86: 498 (May 29) 1931; Experimentelle Beiträge zur Pathogenese des Phenylhydrazinikterus, *ibid.* 89: 513 (July 5) 1932. Hiyeda, K.: Experimentelle Studien über den Ikterus: Ein Beitrag zur Pathogenese des Stauungsikterus, *Beitr. z. path. Anat. u. z. allg. Path.* 73: 541, 1925; Experimentelle Studien über die Pathogenese des Ikterus: Ueber die Entstehung des Toluylenediaminikterus, *ibid.* 78: 389 (Sept. 5) 1927.

5. The existing evidence favors the view that the regurgitated bile in both process 1 and process 2 passes chiefly by way of the lymphatics and thoracic duct into the blood stream (Bloom, William: The Role of the Lymphatics in the Absorption of Bile Pigment from the Liver in Early Obstructive Jaundice, *Bull. Johns Hopkins Hosp.* 34: 316 [Sept.] 1923. Hiyeda⁴).

- 2. Calculous jaundice, sixty-one cases.
- 3. Parenchymal jaundice, fifty-seven cases.⁶
 - (a) Cirrhosis hepatis, twenty-eight cases.
 - (b) "Catarrhal" jaundice, twenty-three cases.
 - (c) Acute or subacute atrophy, five cases.

In addition to the cases just classified, there were five instances of benign (postoperative) common duct stricture and two of chronic pancreatitis with jaundice.

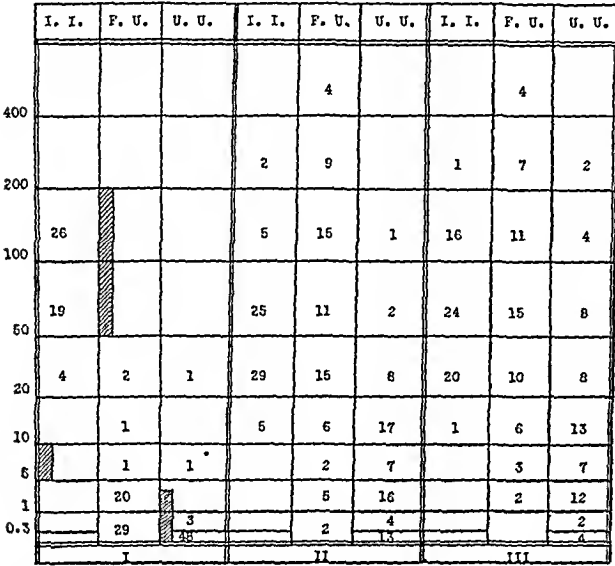


Chart 1.—Icteric index and urobilinogen excretion in feces and urine in the common forms of jaundice, expressed in units (icteric index) or milligrams (urobilinogen). The shading indicates the normal range. Group I: cancerous jaundice, fifty-three cases, operation or autopsy in 60 per cent. Group II: calculous jaundice, sixty-one cases, operation or autopsy in 56 per cent. Group III: parenchymal jaundice, fifty-seven cases, autopsy in 19 per cent.

The diagnoses in these cases were based in part on postmortem or operative evidence and in part on clinical study only. The percentage of cases in which the diagnosis was verified at operation or autopsy is given in the legend for chart 1. The relatively low percentage in group 3 (the parenchymal group) is accounted for by the considerable number of cases of catarrhal jaundice which were included and in which recovery took place. Cases are not included in the present analysis if the diagnosis was made on clinical grounds alone unless the various data and the outcome clearly indicated the nature of the disease.

Particular attention was given throughout this study to the degree of jaundice and to the per diem excretion of urobilinogen in feces and urine. The data for some of the cases in the list were reported in an earlier communication dealing with urobilinogen excretion.⁷ For statistical analysis, however, these cases are included in the present report.

The icterus index was determined by colorimetric comparison of the suitably diluted blood serum with a 1:10,000 potassium bichromate solution. The normal range is believed to be from 5 to 10. The per diem excretion of urobilinogen in feces and urine was determined by my modification⁸ of Terwen's procedure.⁹

6. Cases of jaundice due to parenchymal liver damage on the basis of severe infection and those due to sulfanilamide come under this heading but are not included in the present study. (Watson, C. J., and Spink, W. W.: The Effect of Sulfanilamide and Sulfapyridine on Hemoglobin Metabolism and Liver Function, Arch. Int. Med. 65:825 [April] 1940).

7. Watson, C. J.: Studies of Urobilinogen: III. The Per Diem Excretion of Urobilinogen in the Common Forms of Jaundice and Disease of Liver, Arch. Int. Med. 59:206 (Feb.) 1937.

8. Watson, C. J.: Studies of Urobilinogen: I. An Improved Method for the Quantitative Estimation of Urobilinogen in Feces and Urine, Am. J. Clin. Path. 6:458 (Sept.) 1936.

9. Terwen, A. J. L.: Ueber ein neues Verfahren zur quantitative Urobilin Bestimmung im Harn und Stuhl, Deutsches Arch. f. klin. Med. 149:72 (Nov.) 1925.

The method was applied to one or more twenty-four hour urine specimens and to one or more four day collections of feces. It is essential that the four day collection include at least 250 Gm. of relatively solid feces. If enemas have been used, the liquid and solid portions are separated and a determination is carried out on each, provided the solid portion weighs at least 250 Gm. If less than this is present in the collection, it is believed either that some has been lost or that constipation has been so marked as to prevent any accurate conclusions. In the presence of diarrhea, determinations are of value with respect only to biliary obstruction, not to the rate of blood destruction. I am aware of the recent paper of Sparkman¹⁰ advocating that the determination be carried out on individual samples of feces or urine and that the values be expressed in terms of milligrams per hundred grams or hundred cubic centimeters. Although this appears to make for simplicity, there are a number of objections to Sparkman's procedure, which will be considered in a separate communication.

RESULTS

It is believed unnecessary to give in detail the exact data for the icterus index and urobilinogen excretion in the various cases of regurgitation jaundice. Sufficient representative data of this type have been provided in a previous communication.⁷ For purposes of comparison, all the data thus far obtained have been divided into a number of different groups, each representing a certain range of values. In chart 1 may be seen the range of values for the icterus index and the amount of urobilinogen in the feces and urine in the cases of all three groups of regurgitation jaundice. Data relating to jaundice and urobilinogen excretion were obtained from thirty-three cases of carcinomatous metastases to the liver. These cases have been divided into three groups as shown in chart 2.

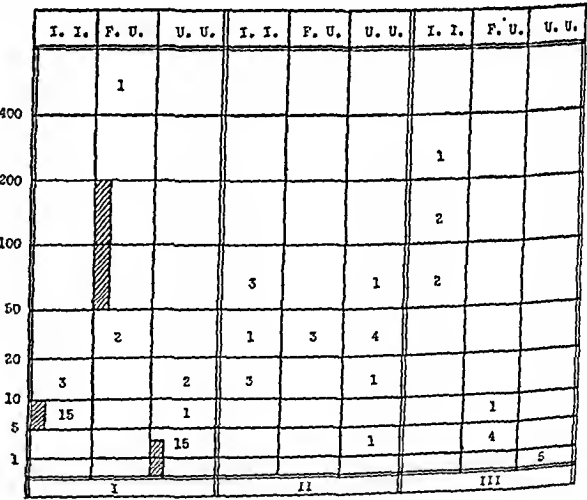


Chart 2.—Icteric index and urobilinogen excretion in feces and urine in thirty-three cases of carcinomatosis of the liver, expressed in units (icteric index) or milligrams (urobilinogen). The shading indicates the normal range. Group I: little or no jaundice, discrete metastases. Group II: mild or moderate jaundice, confluent nodular or diffuse metastases. Group III: marked jaundice, involvement of main hepatic ducts or common bile duct by metastases.

In table 1 are shown the results of the study of five cases of postoperative common duct stricture. The pertinent data in the two cases of chronic pancreatitis are

10. Sparkman, Robert: Stur... A Simple and Rapid Method for Quantitative Determinations of Urobilinogen Content of Single Specimens of Urine and Stool, ibid. 63:872 (May) 1939.

given in table 2. These patients were observed with particular reference to urobilinogen excretion in the feces—in other words, with respect to the degree of biliary obstruction—in order to permit comparison with the results obtained in the cancer group.

COMMENT

1. *The Degree of Biliary Obstruction.*—It has often been assumed that the intensity of jaundice is dependent chiefly or solely on the degree of biliary obstruction. (The term biliary obstruction will be used in the broad

TABLE 1.—Urobilinogen Excretion in Cases of Jaundice Due to Postoperative Stricture of the Common Duct

Case	Name	Sex	Age, Years	Date	Icteric Index	Fecal Urobilinogen	Urinary Urobilinogen
1	E. S.	♀	42	4/29	43		
				5/5	51		
				5/7	..	.....	13.5
				5/12	30	375.0	
				5/17	52	345.5	101.5
				5/25	33	325.5	20.4
2	M. L.	♀	48	4/11	63	7.7	Trace
3	J. M.	♀	47	10/21	50	1.2	Trace
4	A. R.	♀	44	4/14	85	6.7	3.9
5	R. O.	♀	28	9/6	88	1.3	Trace
				9/11	..	Trace	Trace

sense to denote any intrahepatic or extrahepatic interference with bile flow.) As a matter of fact this is only one of several important factors, and it is therefore desirable that the intensity of icterus and the degree of biliary obstruction be considered separately.

In group I (chart 1) it will be noted that in forty-nine of fifty-three cases of cancer involving the biliary tract there was complete biliary obstruction. This is arbitrarily defined as less than 5 mg. of urobilinogen daily in the feces.¹¹ According to this definition, 92 per cent of the cases in group I showed complete biliary obstruction, and in 55 per cent there was less than 1 mg. of urobilinogen a day in the feces. This is particularly significant when contrasted with the number of such cases in the noncancerous groups II and III (chart 1). In but two instances in these groups, in other words in 1.7 per cent of 118 cases, was there less than 1 mg. of feces urobilinogen a day. Both of the patients had common duct stones. In five additional instances in group II the per diem amount of the feces urobilinogen was less than 5 mg. This constitutes a total of seven, or 11.5 per cent, of the group of sixty-one cases. The exact incidence of cases of complete obstruction is undoubtedly lower than this, however, since many cases of common duct stone with but slight jaundice observed during the same period of time were not investigated as regards per diem urobilinogen excretion. On the other hand, relatively very few cases of biliary tract cancer were omitted from the study. In group III, consisting of fifty-seven cases of parenchymal jaundice, there were but two, or 3.5 per cent, exhibiting less than 5 mg. of feces urobilinogen per day. There were but four cases in the biliary tract cancer group (I) in which more than 5 mg. a day was found. In one of these,

in which cancer of the gallbladder extending into the common duct was proved at operation, the average amounts in two successive four day periods were 7.2 and 7.5 mg. This is regarded as too much to represent pigment derived from bile stained mucosa and probably indicates that the biliary obstruction was almost, but not quite, complete. In two of the four cases there were polypoid tumors of the common duct which because of their soft, sessile structure permitted egress of a certain amount of bile. In one of these cases, studied over a considerable period of time, complete obstruction was intermittent and it appeared that the polypoid tumor had behaved as a ball valve. In the fourth case there was much reason to believe that the patient had a very small internal biliary fistula. On x-ray study gas was observed in the biliary tract; it was not possible, however, to demonstrate a fistula by means of a barium sulfate meal or enema. This patient had relatively little icterus, the icterus index being 26. At operation it was determined that there was a large hard carcinoma in the head of the pancreas extending up into the common bile duct. The surgeon did not observe any internal biliary fistula but stated that it might well have been present but unrecognizable. Later biopsy of a cervical lymph node revealed adenocarcinoma.

In chart 1 it will be noted that the twenty-four hour urine urobilinogen was less than 1 mg. in fifty-one of the fifty-three cases. As a matter of fact the amount was less than 0.3 mg. in forty-eight cases, or 90 per cent of the entire group. This is in particular contrast with the results in group II (parenchymal jaundice), in which there were but six cases showing less than 1 mg. a day, of which four, or 7 per cent of the entire group, exhibited less than 0.3 mg. a day. Absence of urobilinogen from the urine in patients with jaundice is not safe evidence that there is complete interference with bile flow. In many cases of calculous jaundice with incomplete biliary obstruction, urobilinogen is either

TABLE 2.—Chronic Pancreatitis with Jaundice

Patient	Course of Illness	Necropsy
Case 1 ♂ aged 62	Painless jaundice 6 mo.; icteric index 51; fecal urobilinogen 76.6 mg. per day; urinary urobilinogen 5.7-21.4 mg. per day; severe diabetes. Cholecystectomy; cholecystitis, cholelithiasis, cholechochitis, chronic pancreatitis; died 1½ yrs. after operation	Severe diffuse chronic suppurative pancreatitis; hypoglycemic cerebral damage
Case 2 ♀ aged 71	Painless jaundice and pruritus 1 mo.; clay colored stools, dark urine; easily palpable nontender distended gallbladder; icteric index 116-162; fecal urobilinogen 9.4-22 mg. a day; no urinary urobilinogen. Cholecystogastrostomy because of hard nodular head of pancreas, believed carcinomatous; death from hemorrhage 1 week after operation	Chronic pancreatitis

absent from the urine or not appreciably increased. A few cases of parenchymal jaundice have been observed in which the feces urobilinogen ranged from 10 to 20 mg. a day, rarely even higher than this, but with complete absence of urobilinogen from the urine. It could only be assumed in these cases that reabsorption of urobilinogen from the bowel was faulty, or that the liver, even though damaged, was yet capable of disposing of small amounts of urobilinogen which were reabsorbed.

Reference has been made in a previous communication⁷ to the probable basis for the striking difference in the degree of biliary obstruction usually noted in cancerous as contrasted with calculous or with parenchymal

11. Very small amounts of urobilinogen are undoubtedly derived at times from the bilirubin of bile stained epithelial cells of the colon (Gerhardt, Dietrich; Ueber Urobilin, Ztschr. f. klin. Med. 32: 303, 1897. Wallace, G. B., and Diamond, J. S.: The Significance of Urobilinogen in the Urine as a Test for Liver Function, Arch. Int. Med. 35: 698 [June] 1925. McMaster, P. D., and Elman, Robert: Studies on Urobilin Physiology and Pathology, J. Exper. Med. 41: 513 [April] 1925). The amount which might be derived in this way has never been ascertained with certainty, but it is probably never greater than 5 mg. a day and rarely as much as that.

jaundice. Briefly stated, this is the progressively stenosing or compressing effect of neoplastic disease, differing markedly from the constantly dilating effect of a common duct stone. One might expect certain exceptions in cases of impacted calculi, but so far at least this has not been true in my experience. Cases of gallstones tightly impacted in the ampulla of Vater, without complete biliary obstruction, were described in an earlier report.⁷ The two most notable exceptions in the entire series to date were cases in which common duct stones were loose in the duct but were nevertheless associated with complete exclusion of bile from the intestine. The data from one of these cases are shown in table 3.

It will be noted that there was considerable evidence of hepatocellular dysfunction in this case. The galactose test was positive and the stercobilin tolerance¹² was markedly reduced. It seems likely that there was an associated disturbance in the secretion of bile, which together with the calculous obstruction would then readily explain the persistent absence of urobilinogen from the feces during the first four periods. Evidence

TABLE 3.—Common Duct Stone with Complete Biliary Obstruction

Date	Urinary Urobilinogen	Fecal Urobilinogen	Icteric Index	
2/15	.....	.....	54	
2/20	.....	Trace	..	
2/22	0	.....	..
2/20	Trace	Trace	..	Galactose test 4.4 Gm.
2/27	71.1 (after 100 mg. crystalline stercobilin intravenously)	.....	..
2/28	Trace	Trace	..	
3/1	Trace	Trace	..	
3/2	5.2 (after 10 mg. crystalline stercobilin intravenously)	.....	..
3/3	Trace	Trace	..	
3/6	Trace	Trace	..	
3/7	25.4 (after 50 mg. crystalline stercobilin intravenously)	.....	..
3/8	Trace	.....	..
3/10	2.5	19.2	..	
3/14	8.8	84.9	38	
3/18	6.0	217.7	..	
3/24	.....	.....	21	
5/4	.....	.....	9	cholecystectomy; choledocholithotomy

of liver dysfunction was also observed in the other of the two exceptions mentioned.

In parenchymal jaundice, urobilinogen seldom disappears from the feces for any consecutive four day period, presumably because a complete suppression of bile flow of this duration is relatively rare. There can be no doubt, however, that this does occur now and then in acute catarrhal jaundice at the height of the disease; furthermore, it is seen in some instances of acute or subacute atrophy of the liver. In one of the five cases of atrophy in the present series, there was complete cessation of bile flow (1.9 mg. of feces urobilinogen a day).

The results in table 1 indicate that traumatic stricture of the common bile duct may or may not be associated with complete biliary obstruction. In one of the cases it is seen that the icterus was of relatively low intensity and the urobilinogen of the feces was actually increased on repeated examinations. The significance of this increase is not clear, but it was probably not due to temporary release of obstruction such as is often observed with common duct stone (as exemplified by the cases in chart 1, in which the feces urobilinogen was above 200 mg. a day). It was considered likely

that the increase in this case was due to increased blood destruction related to severe infection and fever (cholelinitis).

In the two cases of chronic pancreatitis with jaundice included in this series the biliary obstruction was not complete (table 2). In the second of these cases the diagnosis was rendered particularly difficult because of an easily palpable, distended and nontender gallbladder. A palpable gallbladder of this smooth and nontender variety has been encountered in only one other case in which there was incomplete biliary obstruction. This was the case already referred to, of a carcinoma of the head of the pancreas, in which there was x-ray evidence of an internal biliary fistula. These two instances make it clear that complete biliary obstruction is not essential to the presence of a palpable, distended gallbladder. The possibility of chronic pancreatitis as the cause of jaundice should be considered in the presence of incomplete biliary obstruction and a palpable gallbladder of the type just mentioned. In my experience this type is usually distinguished with a considerable degree of certainty from the palpable gallbladders due to empyema, hydrops, large calculi or primary carcinoma. The first two of the latter varieties are much more vague and are tender as a general rule; muscle spasm is noted in the cases with more active inflammation. The palpable gallbladder due to a large stone in the fundus is very hard and often irregular; the same may be said for primary carcinoma of the gallbladder. It may be emphasized that a nontender, smooth distention of the gallbladder is a sign (Courvoisier's) of cancerous biliary obstruction that is too frequently overlooked; when it exists in association with complete biliary obstruction (less than 5 mg. a day of feces urobilinogen) there can be little doubt that the jaundice is due to cancer. I have encountered no exception to this.

2. *The Intensity of Jaundice.*—In chart 1 it is seen that the jaundice was more often intense in cases of biliary obstruction due to cancer (group I) than in the calculous or parenchymal groups. This is, of course, an observation that has often been made in the past. While in the majority of cases in group I the icterus index was above 100, in a considerable proportion it is seen to be between 50 and 100 and in a few between 20 and 50. It is undoubtedly true that jaundice due to cancer in the biliary tract is likely to be of sufficient degree so that the icterus index is above rather than below 100 and that calculous jaundice, on the contrary, rarely has an icterus index above 100; nevertheless there is enough overlapping so that a sharp separation cannot be made on this basis. The icterus index in the series of cases of parenchymal jaundice (group III in chart 1) exhibits an even wider range, and the intensity of jaundice is of little or no value in distinguishing this group.

In the presence of complete biliary obstruction there are two factors which determine the intensity of jaundice. The first and perhaps the most important of these is the rate and manner of hemoglobin wastage. It has been established definitely by Rous and Drury¹³ that loss of blood in dogs having complete biliary obstruction is followed by a decrease in the intensity of icterus, probably resulting from a compensatory throttling of the rate of blood destruction. Conversely, an increase in the rate of blood destruction, such as may be induced by hemolytic agents, is followed by an increase in the

12. Watson, C. J.: Fate of Parenterally Administered Crystalline Urobilin; Urobilin Tolerance Test of Liver Function, *Proc. Soc. Exper. Biol. & Med.* 34: 377 (April) 1936.

13. Rous, Peyton, and Drury, D. R.: Jaundice as an Expression of the Physiological Wastage of Corpuscles, *J. Exper. Med.* 41: 601 (May) 1925.

intensity of icterus. Reference has been made in an earlier report⁷ to human examples of this effect of blood loss in reducing the degree of jaundice, also to the importance of increased hemolysis in some cases of parenchymal jaundice in which the icterus index is very high in spite of the fact that considerable bile is obviously entering the intestine. (The feces urobilinogen may be markedly increased in spite of a high icterus index. This was true in a number of the cases of group III in chart 1, in which the value for the feces urobilinogen was in excess of 200 mg. a day.)

The second of the two factors mentioned is the excretion of bilirubin in the urine. Loss of bilirubin in the urine constantly tends to decrease the intensity of jaundice. If the production of bilirubin diminishes, it is clear that the degree of jaundice will rapidly lessen because of bilirubinuria. So far as can be determined this important factor has never been investigated quantitatively with adequate methods in a series of cases of proved complete biliary obstruction.

Jaundice is absent or slight in the majority of cases of metastatic carcinomatosis of the liver. The data presented in chart 2 cannot be regarded as adequate indication of the true proportion with little or no jaundice, since many cases of carcinomatosis of the liver without jaundice were not included in the present study. On the other hand, an attempt had been made to include all cases¹⁴ with definite jaundice, and relatively very few have been omitted. From the present study it is evident that cases of hepatic carcinomatosis may be divided into three groups (chart 2). This division, of course, is not absolute, and it is obvious that any one case might be classified with any one of the three groups at various periods of the disease. In most of the present cases, however, the classification remained the same throughout the period of observation. The type of case in group II is that which is most easily confused with parenchymal jaundice, particularly with cirrhosis of the liver, principally because of mild jaundice, urobilinogenuria and frequently ascites. The very diffuse type of carcinomatosis sometimes encountered in the livers in these cases may even be mistaken at necropsy for cirrhosis of the liver (until the correct diagnosis is established microscopically). Biliary obstruction was but partial in the cases of group II. The feces urobilinogen was not determined except in cases with considerable icterus. In the cases of group III in chart 2, however, complete biliary obstruction occurred because of metastatic lesions involving the main hepatic ducts. These five cases are also included with the fifty-three cases of biliary tract cancer in chart 1.

3. *Urobilinogenuria and Associated Evidence of Diffuse Parenchymal Liver Damage.*—As already noted, complete biliary obstruction (group I, chart 1) is characterized by an absence of urobilinogen in the urine, although this feature alone is not sufficient evidence that the obstruction is complete.

The present data indicate that urobilinogenuria present after the first few days of jaundice is strong evidence against the presence of cancer in the extra-hepatic biliary tract. No case has been encountered in which it appeared that urobilinogen was being formed and absorbed from the biliary tract itself, as noted in dogs by McMaster and Elman.¹⁵ (Clinical proof of this requires urobilinogenuria in the presence of complete biliary obstruction.)

In the calculous and parenchymal groups of jaundice (chart 1) marked urobilinogenuria was often observed. In general, the amounts were not large in cases of common duct stone unless there was associated acute biliary tract infection such as cholecystitis, empyema of the gallbladder or cholangitis, or unless the biliary obstruction was of more than several weeks' duration, resulting in marked enlargement of the liver (biliary or obstructive cirrhosis in many instances). It must be emphasized, however, that while urobilinogenuria was much more often observed in marked degree in the parenchymal group, too much overlapping is noted to permit differentiation on this basis alone. In the distinction of cases belonging in the parenchymal group, several additional clinical features which are often associated with urobilinogenuria may be emphasized.

1. The amine odor, or foetor hepaticus.¹⁶ This has been noted in marked degree only in acute or subacute atrophy of the liver. It has been noted in much fainter concentration in several cases of protracted severe jaundice of catarrhal type in which the jaundice eventually disappeared, also in cases of chronic hepatic cirrhosis with jaundice. Recently the foetor hepaticus has been observed for one or two days in very ill patients with transient jaundice appearing after administration of sulfanilamide. These individuals recovered. The amine odor in mild degree is therefore not always a fatal prognostic sign.

2. Spider nevi.¹⁶ These are regarded as very suggestive of hepatic cirrhosis. They are readily distinguished from ordinary telangiectases, dilated venules or varices. They may be small and easily overlooked, but even the small ones exhibit the characteristic central angioma, with a varying number of very fine vessels radiating outward. Pulsation of larger angiomas of this type has been observed.¹⁷ In accordance with Eppinger's extensive experience,¹⁸ I have not observed spider nevi except in the regions drained by the superior vena cava. The reason for this is as yet unknown. It should be emphasized that these angiomas often appear within the course of a few days, at times even in small groups. They may be noted on the back of the neck or shoulders, and even on the arms and hands. In my experience, typical multiple spider nevi have not been observed except when there was distinct evidence of liver disease.

3. Physical signs of a small liver. Failure to palpate the liver together with very distinct reduction in liver dulness in the midclavicular line is important evidence that the jaundice is of parenchymal type, either cirrhosis or atrophy.

4. Palpable spleen. While this occurs much more frequently in cases of the parenchymal group, it has been noted in several patients with long standing calculous jaundice (with obstructive cirrhosis) and in occasional cases of carcinomatosis. Hodgkin's disease with jaundice is another possibility to be considered. I have studied two cases, not included among the foregoing, in which there were enlarged spleen and liver, deep jaundice and complete biliary obstruction, explained at necropsy by a tight collar of lymph nodes about the common duct; microscopic examination in both instances showed Hodgkin's disease.

16. Eppinger, Hans: *Die Leberkrankheiten*, Berlin, Julius Springer, 1937.

17. Williams, D. H., and Snell, A. M.: Pulsating Angioma (Generalized Telangiectasia) of the Skin Associated with Hepatic Disease, *Arch. Int. Med.* 62: 872 (Nov.) 1938.

14. In the various services of the University of Minnesota Hospitals.
15. McMaster, P. D., and Elman, Robert: Urobilin Physiology and Pathology, *Ann. Int. Med.* 1: 68 (Aug.) 1927.

5. Ascites. This occurs commonly in both parenchymal and cancerous jaundice. In the latter the fluid usually has a specific gravity above 1.014 and is often found to contain mucin, the presence of which is of considerable diagnostic aid. Ascites has been encountered in three cases of long-standing calculous jaundice with secondary obstructive cirrhosis. This is mentioned simply because it indicates that the presence of ascites does not wholly exclude a common duct stone as the underlying, primary cause of jaundice.

SUMMARY AND CONCLUSIONS

1. Regurgitation jaundice may be divided from a clinical standpoint into three main groups: (a) cancerous, (b) calculous and (c) parenchymal.

2. The common variety of jaundice due to cancer is that in which the extrahepatic biliary tract is involved either primarily or by metastatic tumor. In 92 per cent of the cases in this group there was complete biliary obstruction (less than 5 mg. of feces urobilinogen daily). Of the combined cases of the calculous and parenchymal groups, 7.6 per cent exhibited complete biliary obstruction. It may be emphasized that in 55 per cent of the cases of biliary tract cancer there was less than 1.0 mg. a day in contrast with but 1.7 per cent in the combined calculous and parenchymal groups.

3. The icterus index is usually higher in cancerous than in calculous jaundice, but there is sufficient overlapping to prevent reliability of any arbitrary dividing level in diagnosis. A wide range of the icterus index was noted in the cases of the parenchymal group. The intensity of icterus is dependent in part on the degree of biliary obstruction but may vary widely even if the latter is complete. This variation depends on the rate of blood destruction. Hemorrhage causes a decreased rate, with consequent reduction in intensity of jaundice.

4. Carcinomatosis of the liver may be divided into three groups with respect to icterus: (a) Discrete metastases with much relatively normal liver parenchyma and no involvement of the main hepatic ducts; there is little or no jaundice or urobilinogenuria. (b) Diffuse or confluent nodular metastases, with moderate jaundice, and urobilinogenuria; the clinical picture may simulate cirrhosis of the liver. (c) Metastases involving the main hepatic ducts, with deep jaundice and complete biliary obstruction; these cases are included with those of biliary tract cancer.

5. In 90 per cent of cases of biliary tract cancer there was less than 0.3 mg. of urobilinogen a day, while but 7 per cent of the combined calculous and parenchymal groups were in this range. Increases in the twenty-four hour urine urobilinogen were most frequent and marked in the parenchymal group but were often noted in calculous jaundice also. A number of other clinical features are of value in distinguishing these two groups of cases.

6. Jaundice due to traumatic common duct stricture may or may not be associated with complete biliary obstruction.

7. In two cases of chronic pancreatitis with jaundice, biliary obstruction was not complete.

8. The palpation of a nontender, smoothly distended gallbladder is strong evidence that jaundice is due to cancer. This may be regarded as certain if there is an associated complete biliary obstruction. The same type of palpable gallbladder is encountered rarely in the presence of incomplete biliary obstruction due to chronic pancreatitis.

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THE SURGICAL TREATMENT OF LEAD ENCEPHALOPATHY

WITH PARTICULAR REFERENCE TO THE
PREVENTION OF SEQUELAE

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Lead encephalopathy as an entity was first described by Tanquerel des Planches,¹ although other forms of lead poisoning have been described by many other men whose names are well known in medical literature.² Since the work of Tanquerel des Planches many French clinicians³ have contributed to our knowledge of lead poisoning. The disease with its many forms and sequelae has also been recognized and studied in Australia,⁴ and Kato⁵ has recently summarized the extensive Japanese literature on the subject.

The sequelae of lead encephalopathy have included paralysis, tremor, hemiplegia,⁶ hallucination, paraplegias, amblyopia, hydrocephalus, convulsion, mental retardation, melancholia and delirium. These residuums have been observed predominantly in adults, though a few authors have considered the situation as it relates to children. In American pediatric literature Thomas and Blackfan⁷ were the first to point out that lead encephalopathy, while it did occur in adults, was much more frequent in children. Others⁸ have reported cases which have substantiated this premise. According to all reports the mortality in cases of lead encephalopathy in children has been very high. Blackfan⁴ published reports of four children who had convulsions, of whom three died and one recovered. This one was apparently well two years later. Strong⁹ had one patient who ate paint from the bed; meningeal signs with convulsions developed, and even though repeated lumbar punctures were performed the child died twelve days after the onset of symptoms. Aub and his associates² report a mortality of from 25 to 75 per cent. Of four patients observed by Park, Jackson and Kajdi,¹⁰ all had convulsions. Two died and the two that survived showed marked mental retardation. However, both of those who recovered had normal spinal fluid pressure during

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3. Weller, C. V., and Christensen, Aileen D.: *Cerebrospinal Fluid in Lead Poisoning*, *Arch. Neurol. & Psychiat.* 14: 327-345 (Sept.) 1925.

4. Blackfan, K. D.: *Lead Poisoning in Children, with Especial Reference to Lead as a Cause of Convulsion*, *Am. J. M. Sc.* 153: 877-887 (June) 1917.

5. Kato, Katsuji: *Lead Meningitis in Infants: Résumé of Japanese Contributions on the Diagnosis of Lead Poisoning in Nurslings*, *Am. J. Dis. Child.* 44: 569-591 (Sept.) 1932.

6. Gowers, W. R.: *Diseases of the Nervous System*, ed. 2, Philadelphia, P. Blakiston's Son & Co., 1900.

7. Thomas, H. M., and Blackfan, K. D.: *Recurrent Meningitis, Due to Lead, in a Child of Five Years*, *Am. J. Dis. Child.* 8: 377-380 (Nov.) 1914.

8. Ford, F. C.: *Diseases of the Nervous System in Infancy, Childhood and Adolescence*, Springfield, Ill., Charles C. Thomas, Publisher, 1937. Thomas, H.: *A Case of Generalized Lead Paralysis, with a Review of the Cases of Lead Palsy Seen in the Hospital*, *Bull. Johns Hopkins Hosp.* 15: 209-212, 1904. Fisher, E. D.: *Lead Poisoning, with Special*

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the acute phase of the disease. In McKhann's¹¹ series of forty children with lead poisoning, twenty-four had symptoms of encephalopathy. Of these forty children nine died, and five of those who survived retained residuals. In another series McKhann and Vogt¹² reported forty-five cases of lead encephalopathy. Eleven patients died and twelve had permanent sequelae. Of these twelve four had convulsions and four had cerebral atrophy. Tremor was noted in two, six were mentally retarded, two had muscular weakness, three were blind and one had a speech defect. In 1926 McKhann¹³ reported the case of a child 23 months old who had lead encephalopathy and in whom a paresis of the left arm and leg persisted even after two years. Williams and his associates¹⁴ report forty cases in children in which lead poisoning resulted from using old storage batteries as fuel. Five patients had encephalopathy and there were no deaths. They say nothing of any sequelae developing.

It is obvious from a review of the literature that the reports concerning the sequelae of lead encephalopathy in children are few. Practically all of the older literature deals with adults, in whom the clinical picture is usually quite different. It is only in the last three decades that lead encephalopathy has been recognized as a not uncommon disease of childhood, which in the acute stage typically results in convulsions and in signs of meningeal irritation and of increased intracranial pressure. Even from the rather scant literature available it is, however, obvious that in general the mortality in this condition is high, varying from 25 to 75 per cent, and that the disease is particularly apt to prove fatal in children in whom convulsions and/or the signs of increased intracranial pressure develop. It is also apparent that complete and uncomplicated recovery from the disease is not as frequent as might be desired. Many of these children survive the acute episode only to be burdened with convulsions, mental retardation, blindness, paralysis or other manifestations of permanent injury to the nervous system for the rest of their lives.

Accordingly, we propose to review our few cases of lead encephalopathy in children in which the acute phase was promptly relieved by surgical decompression as reported by Bucy and Buchanan¹⁵ several years ago. We wished to determine whether this limited series might give us any clue as to whether surgical decompression is as successful in preventing the development of sequelae as it is in relieving the acute manifestations of this extraordinarily malignant and crippling disease of childhood.

It was McKhann¹¹ who first proposed a decompression for the relief of the increased intracranial pressure which so commonly occurs with lead encephalopathy in children. Roentgenograms of the skull had been taken only a few days apart in one of his cases of lead encephalopathy and revealed a separation of the cranial sutures. This "spontaneous decompression" resulted in a striking clinical improvement. As separation of the sutures is often inadequate he was led to advocate a surgical decompression in such cases. However, it would appear from his published works that this suggestion was never adopted in any of his

cases. Bucy and Buchanan,¹⁵ who first performed such a decompression as a result of an error in diagnosis, demonstrated the value of this procedure and advocated its adoption in suitable cases. In their cases the intracranial pressure was relieved and a rapid recovery ensued. These cases have now been followed, one for five years and the other for seven years after operation, and another case not previously reported at that time has been followed for three years after operation.

The case histories previously reported will be cited only briefly. A more detailed report can be obtained from the article by Bucy and Buchanan.¹⁵

REPORT OF CASES

CASE 1.—History.—Roy C., aged 2 years, was referred to the University of Chicago Clinics, where he was admitted Oct. 6, 1934, by Dr. Joseph Brennemann of the Children's Memorial Hospital. The history as given by the mother was that the patient and Ray, his brother, a fraternal twin, both ate painted plaster from the wall three months before admission. She gave them both castor oil, which Roy vomited but the brother retained. The brother immediately recovered but Roy soon became ill. From the onset until admission he had spells of vomiting of several days' duration between which he seemed to regain strength. The bowels were loose at times during this period. Six weeks before admission he had a generalized tonic

TABLE 1 (case 1).—Comparative Physical Measurements of the Patient, Roy, and His Uninvolved Twin Brother, Ray

	Head Circumference, Cm.		Weight, Kg.		Height, Cm.	
	Roy	Ray	Roy	Ray	Roy	Ray
Oct. 4, 1932	Birth	....	3.33	2.73	.....	.....
Oct. 11, 1934	Operation	....	....	....	....	....
Feb. 20, 1935	51	....	....	....	....	....
April 3, 1935	51	....	....	....	96.52	96.52
Jan. 8, 1936	51	50	19.0	14.6	96.52	89.8
Jan. 27, 1937	52.3	50.8	....	....	....	....
Jan. 5, 1938	53.0	51.0	22.2	18.9	109.2	104.1
Aug. 2, 1939	53.4	51.2	23.4	19.7	118.1	111.7

spasm lasting two minutes and on October 4 a clonic convulsion lasting one and a half hours.

Examination.—The head was enlarged and there was dilatation of the superficial veins of the scalp. There was a cracked pot sound on percussion. Ophthalmoscopic examination showed papilledema of from 2 to 2½ diopters. The pupils were equally dilated and reacted slowly to light through a small range. Nystagmus was absent and conjugate movements of the eyes were not restricted. The remaining cranial nerves were normal. The abdominal reflexes were absent. Sensation and muscular strength and coordination were intact. On walking and sitting the child showed some difficulty in maintaining his balance. There was glycosuria with a fasting blood sugar value of 138 mg. per hundred cubic centimeters, but the dextrose tolerance curve was normal. Roentgenograms of the skull showed a generalized diastasis of all sutures.

Diagnosis and Operation.—Since the history of eating paint was not obtained until over a month after admission, a diagnosis of malignant tumor of the midline of the cerebellum was made. A suboccipital craniectomy was performed. No tumor was found.

Postoperative Course.—October 17, x-ray films of the wrist showed a definite line of increased density at the distal end of the radius and ulna.¹⁶ Examination of the blood for stippling failed on all occasions to reveal any cells so affected. Lead was demonstrated in the spinal fluid, blood, urine and feces.

The patient's condition gradually improved, the papilledema subsided and the cerebrospinal fluid pressure soon returned to

11. McKhann, C. F.: Lead Poisoning in Children: The Cerebral Manifestations. *Arch. Neurol. & Psychiat.* 27: 294-304 (Feb.) 1932.

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15. Bucy, P. C., and Buchanan, D. N.: The Simulation of Intracranial Tumor by Lead Encephalopathy in Children, with Remarks Concerning Surgical Treatment of Latter. *J. A. M. A.* 105: 244-250 (July 27) 1935.

16. Caffey, John: Clinical and Experimental Lead Poisoning: Some Roentgenologic and Anatomic Changes in Growing Bone. *Radiology* 17: 987-993 (Nov.) 1931. Vogt, E. C.: Roentgenologic Diagnosis of Lead Poisoning in Infants and Children. *J. A. M. A.* 98: 125-129 (Jan. 9) 1932. Park, Jackson and Rajdi.

normal. Since his discharge from the hospital he has been seen from time to time in the outpatient clinic with no more complaints and he has continued in excellent health. His optic disks are possibly a little paler than those of his twin brother. The visual acuity, however, has remained excellent.

The lines of increased density in the metaphyses of the long bones visible with the x-rays and diagnostic of lead poisoning in this case have been followed during the more than five years since the operation. With epiphyseal growth these lines have gradually moved farther and farther away from the epiphyses and at the same time have decreased in size until they are no longer visible in the x-ray films made in August 1939.

TABLE 2.—*Intelligence Tests in Case 1*

Date	Roy (Patient)			Ray		
	Chronological Age	Mental Age	I. Q.	Chronological Age	Mental Age	I. Q.
1/7/38	5 yr. 3 mo.	4 yr. 2 mo.	79*	5 yr. 3 mo.	5 yr. 2 mo.	93*
8/9/39	6 yr. 10 mo.	5 yr. 7 mo.	82*	6 yr. 10 mo.	7 yr. 3 mo.	106*
8/17/39	6 yr. 10 mo.	6 yr. 0 mo.	88†	6 yr. 10 mo.	8 yr. 0 mo.	117†

* Revised Stanford-Binet tests.

† Arthur performance scale.

Physically there has been a striking difference in the development of these fraternal (not identical) twins. Roy, the patient, has grown, as the accompanying chronological tabulation shows (table 1), to be much larger and stronger than his twin brother, Ray. He is the more aggressive of the two and invariably is the victor in any scuffle. However, it is noteworthy that even at birth Roy was considerably larger than Ray. Furthermore, the mother is certain that Roy was always the larger of the two boys, even prior to the operation. Unfortunately no records of their height or weight other than those recorded in table 1 have been kept.

Roy's mental development, however, has not kept pace with his physical growth and there is no question that he is retarded as compared with his brother, although he is by no means a feeble-minded child. He does not do as well in school, and his mother has often remarked that he does not comprehend as quickly as his brother. The intelligence quotients of both brothers have been obtained. The results are shown in table 2.

Psychometric studies on these twins have been interesting. On Jan. 7, 1938, these tests were given to the two boys separately. On the revised Stanford-Binet test Roy had a rating of 79 in contrast to Ray's 98. These tests were repeated Aug. 9, 1939, under the same conditions. Roy had a rating of 82, his twin brother of 106. August 17 by the Arthur performance test Roy obtained a rating of 88, his twin of 117.

In spite of the great difference in the twins' final results each time and on both forms, the same tendencies were noted originally and have continued to exist. On the whole they passed and failed the same general type of test, although Ray's initial level was higher and the range greater. Roy's performance was characterized by irregular scatter, marked perseveration, slow reactions, poor initiative and inability to note details. His speech has continued to develop more slowly than Ray's.

It would appear that lead encephalopathy has resulted in definite mental retardation in this case. The differences between the two boys of 19 and 24 points on the Stanford-Binet tests and of 29 on the Arthur performance tests are greater than one would expect in fraternal twins. Newman, Freeman and Holzinger in their book "Twins"¹⁷ give the range of differences for fraternal twins raised in the same environment as 1 to 40. According to these authors 32.7 per cent of such twins show differences of from 0 to 5 and 46.2 per cent of from 5 to 15 (table 3). Thus 78.9 per cent show differences of less than 15 points. It is obvious, therefore, that the difference ranging from 19 to 29 points present in these twins is far greater than one would expect

and is of a degree found in but few instances by Newman, Freeman and Holzinger (table 3). The disease has, however, resulted in no other permanent neurologic disorder and has obviously not retarded the boy's physical development, as Roy has continued to be taller, heavier and stronger than his twin brother, Ray.

The second case is also one of those previously reported by Bucy and Buchanan.¹⁵ It has not been possible to follow their third case.

CASE 2.—E. S., a girl aged 5 years, was referred to the University of Chicago Clinics by Dr. Joseph Brennemann, of Chicago. She was admitted on July 17, 1931, with the story that for the previous three weeks she had complained of headache and had been vomiting. The left eye had been turned in for one week. At first she vomited only once or twice a day, but for the week and a half before admission the vomiting had been more severe and she was unable to retain anything she ate. No nausea accompanied the vomiting attacks. The headaches were persistent for the three weeks period prior to admission, were not localized to any part of the head, but were generalized and varied in intensity from time to time. Four days prior to admission she complained of a stiff neck.

On examination there was a cracked pot sound on percussion of the skull. There were bilateral choking of the optic disks, paralysis of the left external rectus muscle and paresis of the right. There was no nystagmus. The pupils were regular and both reacted normally to light. Some decomposition of movements was present on the finger to nose test on the left side, with a general slowing of rapid alternating movements in both upper extremities. The deep tendon reflexes were hypo-active, and occasionally Babinski's sign could be elicited on both sides. She walked with her feet spread wide apart and with a staggering gait.

Röntgenograms of the skull revealed slight diastasis of the sutures and digital markings on the inner table of the skull, all pointing to increased intracranial tension.

Examination of the blood and urine revealed nothing abnormal.

A diagnosis of a midline cerebellar tumor was made, and July 23 a suboccipital craniectomy and cerebellar exploration were performed. No tumor was found. The unsatisfactory

TABLE 3.—*Range of Differences in Intelligence Quotient of Fraternal Twins**

I. Q. Difference	Number of Cases	Percentage of Total Cases Studied
0 to 5.....	17	32.7
5 to 10.....	12	23.1
10 to 15.....	12	23.1
15 to 20.....	7	13.5
20 to 25.....	2	2.8
25 to 30.....	1	1.9
30 to 35.....	0	...
35 to 40.....	1	1.9
Total cases.....	52	100.0

* This table shows the frequency of the various differences in intelligence quotient (I. Q.) in fifty-two pairs of fraternal (not identical) twins as determined by Newman, Freeman and Holzinger.¹⁷

diagnosis of "acute internal hydrocephalus of unknown origin" was made postoperatively.

The patient made a rapid uneventful recovery and was discharged from the hospital. Results of the examination at that time were normal except for slight pallor of both optic disks and paresis of the external rectus muscle of the left eye, which persisted for several weeks before the condition returned to normal.

After our experience with patient 1 in 1934, this patient was asked to return for reinvestigation because of the similarity between the two. On x-ray films of the wrist and knee taken Oct. 26, 1934, lines of increased density about 1 mm. wide and lying in the shafts of the long bones some little distance above the epiphyses were seen. On reviewing the films of the skull taken at the time of the acute illness in July 1931, it was found that a photograph of one shoulder was present on some of the films. A line of increased density was plainly

¹⁷ Newman, H. H.; Freeman, F. N., and Holzinger, K. J.: *Twins: A Study of Heredity and Environment*, Chicago, University of Chicago Press, 1937.

visible in the metaphysis of the humerus and had been overlooked at the original examination. Similar films made on Jan. 11, 1932, revealed the line slightly removed from the epiphysis.

Following her discharge from the hospital she was seen at intervals in the outpatient department. Except for an otitis media she continued to be well. She was last seen March 13, 1938, almost seven years after the acute lead encephalopathy and the decompression. She was then 12 years old. She was a bright alert child who had done well in her school work. General physical and neurologic examination gave no evidence that the disease had resulted in any permanent impairment. On the revised Stanford-Binet test an intelligence quotient of 96 was obtained. Her performance was characterized by an inability to recognize units as wholes and a tendency rather to be engrossed with detail; poor visual perception, and inconsistent performance in that she failed a simpler form of a given task yet would pass a more difficult version later on. The scatter was irregular.

Although, as Bucy and Buchanan¹⁵ pointed out, the diagnosis in this instance rests heavily on the roentgenographic observations as there was no direct demonstration of the presence of lead in the blood or cerebrospinal fluid or in any of the excreta, there can be little doubt of the accuracy of the diagnosis. The positive x-ray evidence as well as the typical acute development of the signs of increased intracranial pressure and the stiffness of the neck are all typical of this disease.

It is obvious that with the prompt relief of the increased intracranial tension by the surgical decompression she probably was spared the development of any of the neurologic or mental sequelae which so commonly appear in the wake of this disease.

At the time of their original report in 1935 Bucy and Buchanan¹⁵ remarked that, although through diagnostic error a suboccipital decompression had been made in their cases, they thought it not unlikely that the simpler subtemporal decompression would prove equally effective. We were soon presented with an opportunity to check this hypothesis:

CASE 3.—M. T., a girl aged 23½ months, was admitted to the University of Chicago Clinics Aug. 17, 1936, with a history of vomiting three or four times a week since the age of 11 months. This vomiting was associated with no other symptom, and usually occurred from right after to about one hour after meals. The severity of the vomiting was rather constant until about two weeks before admission, when it became worse, and for the week prior to admission she had vomited almost everything eaten. The vomiting was usually projectile in type. There was no other history of any gastrointestinal disturbances.

The child was fairly well developed and well nourished and was not particularly dehydrated. There was a suggestive Macewen's sign. The optic disks were swollen bilaterally 1 or 2 diopters. She walked with her feet wide apart, but neurologic and physical examinations were otherwise negative.

Roentgenograms of the wrists Aug. 22, 1936, revealed lines of increased density at the ends of the shafts of both bones of the forearm and the roentgenograms of the skull showed slight but definite separation of sutures. On examination of the blood, basophilic stippling of the erythrocytes was demonstrated. Glycosuria was present but the dextrose tolerance curve was normal (as in case 1). The red blood cells numbered 3,800,000 and the hemoglobin was 60 per cent. Further questioning of the parents elicited the information that the patient put many objects into her mouth and often chewed at her painted crib.

A diagnosis of lead encephalopathy was made and a right subtemporal decompression was performed on August 25. A needle was inserted into the lateral ventricle and a considerable quantity of clear colorless cerebrospinal fluid under considerable pressure was obtained. The defect in the temporal bone was enlarged, and a stellate incision was made in the dura mater.

The postoperative course was uneventful and she was discharged on the eighth postoperative day.

She was not seen again until Aug. 3, 1939, three years after the operation, at which time she was almost 5 years old. There were no complaints. The physical and neurologic examinations revealed only the site of the temporal decompression, which was flat and soft, and a questionable slight bilateral optic atrophy. The disk margins, however, were normal. She appeared perfectly normal in every other respect.

Roentgenograms of the skull showed the decompression and those of the long bones revealed the lead lines, which were diminished in thickness and density and were at some distance from the epiphyses.

When the patient was 4 years and 11 months old she was given the new Kuhlmann individual test. A mental age of 5 years with an intelligence quotient of 101 was obtained. Her speech and language development was superior to her ability to deal with numbers and her ability to control her motor coordination. She was a well poised and alert child.

Although the illness of this child was of a much more chronic nature than of the other two, it was also much less severe. Therefore, although it would appear that a subtemporal decompression is just as beneficial as a suboccipital one in relieving the acute manifestations of the disease and in preventing the development of sequelae, this cannot be definitely determined until this type of decompression has been tested in more severe cases.

During the same period of time two of our patients have died from this disease. Death of one patient may have been the result of an error in judgment as to the anesthetic agent used and we think it possible that he might have been saved. In the other case the disease was so severe and the child's condition so precarious at the time she was first seen that it is doubted whether any measures at that late date could have proved effective.

CASE 4.¹⁸—*Preoperative Course*.—T. M., a boy aged 21 months, was admitted to the University of Chicago Clinics Aug. 9, 1935. The parents stated that he had been well until one month previously, when he began to refuse food. He soon began to vomit. During this illness he had become constipated. He gradually lost weight and became disinterested and listless. A few days before admission he began to stagger when walking.

On admission the child appeared pale and listless. The pharynx was injected and the cervical lymph glands and spleen were enlarged and palpable. An ophthalmoscopic examination was apparently not made at that time.

The child became very restless and irritable. August 11 he had two generalized convulsions. The following morning at 4:30 he had another convulsion. The possibility of lead intoxication occurred to the attending physician, who then made careful inquiry concerning what the child had eaten. It developed that prior to the onset of the present illness the child had eaten some painted plaster and putty prepared with lead. Examination of the red blood cells revealed many stippled cells, and roentgenograms of the long bones revealed definite bands of increased density ("lead lines") in all the metaphyses. A lumbar puncture was made. The initial pressure was 350 mm. of fluid. The fluid was clear and colorless and contained 26 cells (23 polymorphonuclear leukocytes and 3 lymphocytes) and 62 mg. of protein.

We first saw the patient on the morning of August 12. At that time he was comatose, the temperature was 39.5 C. (103.1 F.), the pulse and respirations were irregular and he was having frequent convulsions. Percussion of the skull gave rise to a cracked pot sound; there were beginning papilledema in both eyes, moderate rigidity of the neck and extensor rigidity of all four extremities.

18. This case has previously been briefly referred to (case 2) by Gant, V. A.: Lead Poisoning: Exposures to Lead; Its Absorption, Transportation, Distribution and Deposition in the Tissues; Photometric Dihizone Method as Accurate Means of Determination; "Normal" Lead in Tissues and Urine. "Normal" Value in Blood, *Indust. Med.* 7: 608-622 (Oct.) 1938; Lead Poisoning: Fifty-One Fatal Cases of Suspected Lead Poisoning and Forty-Six of Nonfatal Lead Poisoning: Diagnosis, Treatment; Summary, *ibid.* 7: 679-699 (Nov.) 1938.

Diagnosis.—In view of these observations, the history of the ingestion of painted plaster and putty, the basophilic stippling of the erythrocytes and the lines of increased density in the roentgenograms, we concurred in the diagnosis of lead encephalopathy and advised an immediate decompression.

Operation.—Because of his poor condition it was thought best to perform the operation with local anesthesia. The subtemporal decompression was begun at 3:35 p. m. August 12. After the opening in the bone had been made and the dura mater incised, with relief of the increased intracranial pressure, a generalized convulsion suddenly developed and the patient ceased breathing. In spite of the administration of artificial respiration, stimulants and other remedies, spontaneous respiration was never resumed and cardiac activity ceased some fifteen to twenty minutes later.

Necropsy.—Microscopic examination of the brain revealed a moderate increase in the connective tissue of the leptomeninges and about the cerebral blood vessels, a moderate swelling of the capillary endothelium, a moderate number of gutter cells in the perivascular spaces, and severe degenerative changes in the ganglion cells of the cerebral cortex and the Purkinje cells of the cerebellum. In addition the necropsy revealed atelectasis of the upper lobes and hypostatic congestion of the bases of both lungs and fatty degeneration of the liver.

Chemical analyses performed in the laboratory of Dr. C. W. Muehlberger, coroner's chemist for Cook County, Ill., revealed 6.0 mg. of lead per hundred grams of bone, 6.0 mg. per hundred grams of liver and 0.51 mg. per hundred grams of cerebral tissue.¹⁹

Although this child's precarious condition makes it doubtful whether he could have survived under any circumstances, we cannot but question the wisdom of our having used a local anesthetic for a patient known to be suffering from frequent generalized convulsions. In retrospect it would seem wiser to have utilized a general anesthetic which would have prevented the development of the terminal convulsion which was, in all probability, the immediate cause of death.

CASE 5.²⁰—Preoperative Course.—A. M. R., a girl aged 7 years, referred to the University of Chicago Clinics by Dr. C. A. Elliott, of Chicago, was admitted Aug. 29, 1936. This child was well until three years previously, when she would at times lose her appetite for food and began to have spells of vomiting. Her mother stated that she had for four years had a most perverted appetite and that she frequently ate such material as sticks, dirt and paint from the stairs and woodwork. During this three year period she was always active and not confined to bed. Aug. 23, 1936, she again began to vomit, though more severely than previously. In the ensuing three days she was unable to take anything by mouth. August 27 she was admitted to the Woodlawn Hospital, Chicago, under the care of Dr. Elliott. She was in a semistuporous condition. There was rigidity of the neck, and Kernig's sign was present. Ophthalmoscopic examination revealed bilateral papilledema of 4 diopters, but no hemorrhages or exudates were seen. Examination of the blood revealed 4,710,000 erythrocytes, 16,150 leukocytes and 62 per cent hemoglobin. In the stained smear less than 5 per cent of the erythrocytes exhibited basophilic stippling. Roentgenograms of the long bones revealed typical lead lines of increased density in the metaphyses. In addition there were three other distinct lines of increased density somewhat removed from the epiphyses. These indicated that there had been at least three episodes of lead intoxication prior to the present one, the earliest two or three years previously.

Dr. Elliott, having made the diagnosis of lead encephalopathy, called us in consultation. We first saw her on August 29 and immediately transferred her to the University of Chicago Clinics for further care.

On admission she was stuporous but at times would cry out and move all four extremities. After the spells of crying,

respiratory movements would often cease for several seconds. The pulse was irregular, ranging from 50 to 60 per minute. She would move in response to painful stimuli. There was severe rigidity of the neck, and Kernig's sign was marked. The pupils were widely dilated and reacted sluggishly to light. There was an internal strabismus due apparently to a left external rectus palsy. There was a severe papilledema with optic atrophy.

Diagnosis.—It was obvious that this was an aggravated and chronic case of lead poisoning with a very severe encephalopathy and marked intracranial hypertension. She was taken directly to the operating room.

Operation.—A right subtemporal decompression was made on August 29 at 7:30 p. m. When first exposed the dura mater was under great tension and it could not be opened safely. The lateral ventricle was punctured but only a few drops of fluid could be obtained, owing, we believe, to compression of the ventricles by cerebral edema. (In other cases we had seen definite internal hydrocephalus.) Although 65 cc. of 15 per cent sodium chloride was administered intravenously, which reduced the tension somewhat, the temporal lobe herniated out of the dural opening in a most alarming fashion.

The pulse, which had been irregular and only 52 per minute at the beginning of the operation, was regular at 108 per minute at its close.

Postoperative Course.—After the operation the child's condition gradually grew poorer and she died at 7:40 p. m. September 3.

Necropsy.—A postmortem examination was made by the coroner's physician, Dr. Howard Zeitlin. He found beginning bilateral bronchopneumonia. There was severe cerebral edema. The right temporal lobe had herniated through the dural defect to a marked degree. There was also a definite pressure cone about the cerebellar tonsils and medulla oblongata. The lateral ventricles were very small. No localized lesions of the brain other than these were seen grossly.

Chemical analyses of the tissues made in Dr. C. W. Muehlberger's laboratory revealed 1.28 mg. of lead in 100 Gm. of liver, 0.99 mg. of lead in 100 Gm. of kidney and 1.91 mg. of lead in 100 Gm. of bone.

It is obvious that in this case we were dealing with a most aggravated acute exacerbation of a chronic condition. It appears doubtful, to us, if any form of therapy could have proved more effective.

CONCLUSIONS

We are well aware that no definite conclusions as to the prevention of sequelae can be drawn from three cases. Nevertheless they indicate that the acute manifestations of lead encephalopathy can be relieved by surgical decompression with a sparing of vision, endangered by the papilledema, and the preservation of life, and suggest that this same procedure may be beneficial in preventing the development of the common sequelae, such as mental retardation, paralyses and tremor. True, one of these three patients is somewhat below average mentally. But it must be borne in mind that of the three children who survived Roy (case 1) was the most seriously ill, had suffered from his disease for three months and was the only one to have convulsions. This, as well as the observations made in case 5, may indicate not only that surgical decompression should be done in these cases but that it should be done as early as possible. Delay may prove costly.

SUMMARY

Of five patients who had lead encephalopathy with the manifestations of increased intracranial tension two died. One might possibly have been saved had a general rather than a local anesthetic been used. The other was far too ill when first seen to have been benefited at that late date from any form of therapy. The three

19. The mean values for the tissues from a series of children not suffering from lead intoxication as reported by Gant²¹ are 0.192 \pm 0.053 mg. of lead in 100 Gm. of liver; 0.090 \pm 0.018 mg. of lead in 100 Gm. of kidney, and 1.335 \pm 0.561 mg. of lead in 100 Gm. of bone.

20. This case was previously referred to by Grant¹⁸ (case 6).

who survived have been followed since the operations for three, five and seven years. Two are perfectly normal physically, neurologically and mentally. One is physically in perfect health but is mentally somewhat below the average for his age and below his twin brother (not identical twin). However, he has surpassed his twin brother in physical development.

From observation of the cases and a review of the literature it is concluded that:

1. The development of the signs of increased intracranial pressure in a young child without definite localizing signs, especially when accompanied by convulsions or the manifestations of meningeal irritation or both, should suggest the possibility of lead encephalopathy. This condition can often be recognized by the presence of lines of increased density in the metaphyses of the long bones as demonstrated in the roentgenograms.

2. Surgical decompression of the brain is an effective means of relieving the symptoms of intracranial hypertension in such cases, of preserving life and vision and of preventing the development of sequelae if the treatment is not too long delayed.

3. General, not local, anesthesia should be used in operating in such cases.

4. It appears that either a suboccipital or a subtemporal decompression may be effective; which will be used must depend on the exigencies of the case.

THE OCULAR MANIFESTATIONS OF ARIBOFLAVINOSIS

A PROGRESS NOTE

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In a recent communication we presented observations on ocular changes noted in a small group of patients with ariboflavinosis.¹ Slit lamp examination showed that a superficial vascularizing keratitis was the principal ocular manifestation. The corneal lesions and associated symptoms and signs disappeared during the administration of riboflavin and recurred when it was withdrawn.

The present report deals with observations made on forty-seven persons shown to be receiving insufficient riboflavin. Several presented no labial or lingual signs of ariboflavinosis but had definite ocular changes which resolved during treatment with the vitamin. The nine patients mentioned in our preliminary report are included in this series.

From the University of Georgia School of Medicine and the University Hospital.
Drs. A. P. Briggs, C. M. Templeton, A. R. Kelly and D. Eggleston aided us throughout this study.

In addition to funds supplied by the three organizations with which the authors are affiliated, facilities available to the University of Georgia School of Medicine from a grant-in-aid by the John and Mary R. Markle Foundation also were used in the study. (Dr. Sydenstricker is affiliated with the Department of Medicine, University of Georgia School of Medicine; Dr. Cleckley with the Department of Neuropsychiatry, University of Georgia School of Medicine, and Dr. Kruse with the Milbank Memorial Fund; Dr. Sebrell is a surgeon in the United States Public Health Service.)

1. Kruse, H. D.; Sydenstricker, V. P.; Sebrell, W. H., and Cleckley, H. M.: Ocular Manifestations of Ariboflavinosis, *Pub. Health Rep.* 55: 157 (Jan. 26) 1940.

SUBJECTS

The patients studied fell into three groups: Sixteen were hospitalized for nutritional disease, and of these eleven had pellagra or were known to have had typical pellagrous lesions within a year. Thirteen were outpatients; three of these were pellagrins in whom signs of ariboflavinosis developed during treatment with nicotinic acid. Eighteen were well nourished institutional employees provided with an apparently adequate diet; all but two of this group complained of cheilosis or of visual disturbances such as photophobia, dimness of vision or "eyestrain" not relieved by correction of refractive errors.

METHOD

Hospitalized patients were maintained on the basal diet deficient in all vitamins used in many previous experiments² and known to produce speedy relapse of pellagra when not supplemented with nicotinic acid. Signs of ariboflavinosis develop in from fourteen to thirty days after the addition of amounts of nicotinic acid sufficient to cure pellagra. (The term pellagra is used arbitrarily to designate the syndrome of glossitis and dermatitis, with or without psychic symptoms and diarrhea, specifically cured by nicotinic acid.) After an observation period of from five to seven days (except in cases 11 and 12, in which the condition was urgent) the predominant deficiency was treated with adequate doses of the appropriate vitamin. To avoid the effects of coincident deficiencies and precipitate the specific avitaminosis under study, the diet was supplemented by the daily administration of 20 mg. of thiamin chloride, 300 mg. of nicotinic acid, 50 mg. of ascorbic acid and 4 cc. of U. S. P. cod liver oil or 5,000 units of vitamin A. At times the dosage of various vitamins was increased to meet specific indications. After signs and symptoms of avitaminosis other than that of riboflavin had been controlled or when signs of ariboflavinosis developed in those patients being treated for predominant nicotinic acid deficiency (cases 3, 9, 10, 13), riboflavin was added. In seven instances (cases 3, 5, 7, 8, 13, 15, 51) treatment was discontinued after cure in order to observe relapse. In five (cases 3, 5, 7, 8, 51) repeated relapses were produced.

These patients were subjected to careful physical examinations with particular reference to disorders which might contribute to the development of nutritional deficiency. Neurologic and ophthalmoscopic examinations were made soon after admission. Erythrocytes, leukocytes, hemoglobin and cell volume were determined at weekly intervals. The concentration of vitamin A, nicotinic acid and ascorbic acid in the blood was estimated repeatedly in nine cases. The gastric contents after injection of histamine were examined each week. The lungs, heart and gastrointestinal tract were studied, often repeatedly, with the fluoroscope and roentgenograms. Electrocardiograms were made on admission and at intervals of a week. Tests for visual acuity and for dark adaptation were done repeatedly in ten cases. The eyes were examined with the slit lamp as soon as possible after admission and at intervals of two or three days thereafter.

Patients observed in the outpatient department were requested not to change their diets and to avoid taking yeast or cod liver oil except when prescribed. Physical examinations, blood counts, hemoglobin determinations and urinalyses were done. The eyes were inspected

2. Sydenstricker, V. P.; Schmidt, H. L., Jr.; Fulton, M. C.; New, J. S., and Geeslin, L. E.: Treatment of Pellagra with Nicotinic Acid, *South. M. J.* 31: 1155 (Aug.) 1938.

with the slit lamp once each week. The group of eighteen institutional employees (physicians, nurses and technicians) was of great interest, since they were all well nourished and active, with none considered ill. Three were on restricted diets, patient 17 on account of cholelithiasis, patient 21 because of quiescent peptic ulcer and patient 36 for the prevention of allergic manifestations. All were cooperative in making no changes in their dietary habits. Slit lamp examinations were made daily or every other day after the discovery of signs of ariboflavinosis.

dose was divided into three or five aliquots given at appropriate intervals to avoid loss from excretion. The significant observations on these three groups of subjects are presented in table 1. No statistical importance can be attached to the incidence by race, sex or age of ariboflavinosis in these persons since the hospitalized patients were with one exception quite ill and suffering from multiple dietary deficiencies, the outpatient group was similarly complicated and the eighteen institutional subjects form a specialized group of white adults between the ages of 20 and 48, above

TABLE 1.—Symptoms and Signs in Forty-Seven Cases of Ariboflavinosis

Case No.	Subject	Race	Sex	Age	Photo-phobia	Dim-ness of Vision	Con-juncti-vitis	Circum-corneal Injec-tion	Vascu-lariza-tion of Cornea	Cor-neal Opac-ities	Pigmen-tation of Iris	Iritis	Cata-ract	Sebor-rhea	Cheilo-sis	Glossitis	Complications	Dosage of Ribo-flavin
Hospitalized Patients																		
1	J. M.	W	♂	36	+	+	+	+	+	..	..	..	..	+	+	+	Pellagra	3 mg.
2	L. H.	W	♂	68	..	+	+	+	..	..	..	..	+	+	+	+	Pellagra	5-25 mg.
5	A. S.	N	♀	27	+	+	+	+	+	..	..	+	..	+	+	+	Pellagra	5-15 mg.
6	L. S.	W	♀	59	+	+	..	+	+	..	..	+	+	+	+	+	Diabetes	5 mg.
7	C. S.	W	♀	45	..	+	..	+	..	..	..	..	+	+	+	+	Pellagra	5 mg.
8	G. S.	N	♀	19	+	+	..	+	+	..	..	..	+	+	+	+	.....	5-15 mg.
9	C. G.	W	♂	53	..	..	+	..	+	..	..	+	..	+	+	+	Pellagra	5 mg.
10	J. H.	W	♂	40	+	+	+	..	..	..	..	..	+	+	+	+	Pellagra	5 mg.
11	L. L.	W	♂	53	+	+	+	+	+	..	..	..	+	+	+	+	.....	6 mg.
12	A. B.	W	♀	47	+	+	..	+	..	..	+	..	+	+	+	+	Pellagra	5 mg.
13	B. W.	N	♀	25	+	+	+	+	+	..	..	..	+	+	+	+	Pellagra	5-10 mg.
14	P. U.	W	♀	50	+	+	+	+	+	..	..	..	..	+	+	+	.....	5 mg.
20	E. A.	W	♀	60	+	..	+	+	+	+	..	..	..	+	+	+	.....	5 mg.
43	J. M.	W	♂	68	+	+	+	+	+	+	+	..	..	..	+	+	Pellagra	5 mg.
44	I. S.	W	♀	56	+	+	+	+	+	+	..	..	..	+	+	+	.....	10 mg.
51	W. T.	W	♂	58	+	+	+	+	+	+	..	..	..	+	+	+	.....	3 mg.
Outpatients																		
15	N. A.	W	♀	46	+	..	..	+	+	+	..	..	..	+	+	+	Pellagra	5 mg.
18	W. G.	W	♀	43	+	+	+	+	+	..	..	..	..	+	+	+	Pellagra	5 mg.
23	A. R.	W	♀	50	+	+	+	+	+	+	+	..	..	..	+	+	.....	5-10 mg.
24	L. G.	W	♂	57	+	..	+	+	+	+	+	..	..	..	+	+	Pellagra	3 mg.
33	J. C.	W	♀	43	+	+	+	+	+	..	..	..	..	..	+	+	.....	6 mg.
39	B. C.	W	♀	50	+	+	..	+	+	..	..	..	..	..	+	+	Pellagra	3 mg.
45	G. R.	W	♀	40	+	+	+	+	+	+	+	..	+	+	+	+	.....	3 mg.
46	O. D.	W	♂	12	+	+	+	+	+	+	..	..	..	..	+	+	Allergy	10 mg.
47	K. W.	W	♂	15	+	+	+	+	+	+	..	..	..	..	+	+	Pellagra	3 mg.
48	S. M.	W	♀	33	+	+	+	+	+	..	..	..	..	..	+	+	.....	3 mg.
49	K. S.	W	♀	66	+	+	..	+	+	..	..	..	..	..	+	+	Cholecystitis	3 mg.
50	J. C.	W	♀	45	+	+	+	+	+	+	..	..	..	..	+	+	.....	3 mg.
52	A. T.	W	♀	36	+	+	+	+	+	..	..	..	..	..	+	+	Pregnancy	5 mg.
Apparently Well Persons																		
16	W. A.	W	♂	22	+	..	+	+	+	..	..	..	..	..	+	+	Cholecystitis	3 mg.
17	S. P.	W	♀	40	+	..	+	+	+	..	..	..	..	..	+	+	.....	3 mg.
19	J. H.	W	♂	28	+	..	+	+	+	..	..	..	..	..	+	..	.....	3 mg.
21	R. T.	W	♀	47	..	..	..	+	..	..	+	..	..	..	+	+	Peptic ulcer	3 mg.
22	J. M.	W	♂	29	+	+	+	+	+	..	+	..	..	..	+	+	Mydriasis	3 mg.
27	C. T.	W	♂	26	+	..	..	+	..	+	+	..	..	..	+	..	.....	5 mg.
28	J. B.	W	♂	32	..	..	+	+	+	+	..	..	..	..	..	..	.....	3 mg.
29	J. M.	W	♂	27	+	..	+	+	+	..	+	..	..	..	..	..	Mydriasis	3 mg.
30	H. S.	W	♀	26	+	..	..	+	..	..	+	..	..	..	..	..	.....	3 mg.
31	L. C.	W	♀	32	+	..	..	+	..	..	+	..	..	..	..	..	.....	3 mg.
32	W. C.	W	♂	28	+	..	+	+	+	+	+	..	..	..	..	..	.....	3 mg.
35	D. E.	W	♂	25	+	..	+	+	+	..	+	..	..	..	..	..	Mydriasis	5 mg.
36	C. W.	W	♀	40	+	+	+	+	+	..	..	..	..	..	..	..	.....	3 mg.
37	I. F.	W	♀	24	+	..	+	+	+	..	+	..	..	..	..	..	.....	3 mg.
38	C. W.	W	♀	24	+	..	+	+	+	..	+	..	..	..	..	..	Mydriasis	10 mg.
40	B. C.	W	♀	46	+	+	+	+	+	..	+	..	..	..	..	..	.....	3 mg.
41	D. W.	W	♀	28	+	..	+	+	..	..	+	..	..	..	..	..	.....	3 mg.
42	N. K.	W	♂	25	+	+	+	+	+	..	+	..	..	..	..	..	.....	3 mg.

DOSAGE AND METHODS OF ADMINISTRATION OF RIBOFLAVIN³

When patients were hospitalized, the usual dose of riboflavin was 5 mg. daily administered in tablets or capsules containing 1 mg. In certain instances from 10 to 25 mg. daily was given in tablets containing 5 mg.; three patients were treated during certain periods with a solution of riboflavin in 65 per cent propylene glycol injected intramuscularly in amounts containing from 3 to 5 mg. of the vitamin daily. Ambulant patients took from 3 to 10 mg. daily in tablets or capsules. The daily

3. It should be noted that riboflavin undergoes rapid changes when exposed to light. All preparations of this vitamin should be well protected from light at all times. We have seen relapse occur in eight instances from failure to keep preparations of riboflavin used for treatment in a dark place.

the average in physique and intelligence, with three exceptions free from known disease and with access to an adequate diet. The possible factors contributing to the development of an isolated avitaminosis in this latter group are the subject of present investigation. The incidence of symptoms and signs of ariboflavinosis in the forty-seven active cases is summarized in table 2.

OCULAR SYMPTOMS OF ARIBOFLAVINOSIS

Photophobia and dimness of vision not corrected by adjustment of refractive errors have been the most frequent symptoms in our patients. In those with severe conjunctival congestion and extensive corneal vascularization (patients 5, 8, 14, 24, 39) photophobia was extreme. Burning sensations of the eyeballs, "roughness" of the eyelids and extreme visual fatigue have

been almost equally common. Nine patients showed marked impairment of visual acuity in the absence of refractive error or opacity of the media. The mild visual disorders often attributed to focal infection, toxic states and eyestrain have been conspicuously frequent.

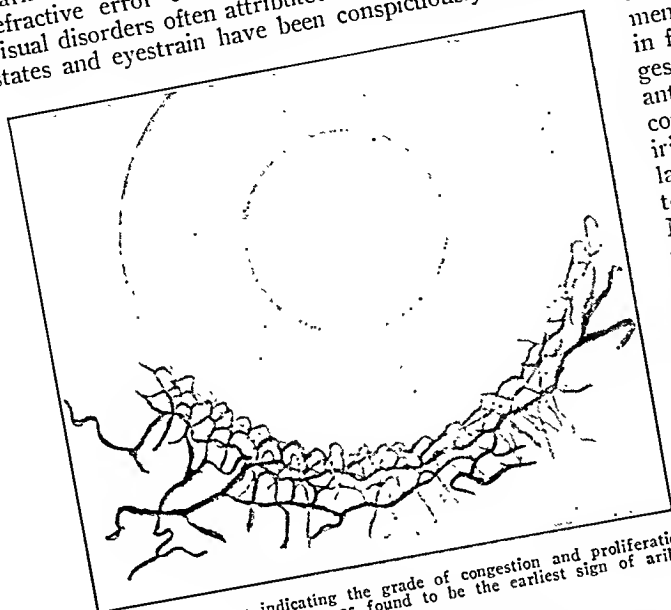


Fig. 1.—Diagram indicating the grade of congestion and proliferation of the limbic plexus which was found to be the earliest sign of ariboflavinosis.

The earliest and most common sign of ariboflavinosis is circumcorneal injection; it was present in forty-five cases of the series. Often it was grossly visible, frequently it could be seen with a hand lens or ophthalmoscope, and always it was obvious on slit lamp inspection as marked congestion and proliferation of the limbic plexus. In cases not showing limbic congestion, arcus senilis and cataract were present. For reasons not apparent, the presence of arcus senilis would seem to offer some obstacle to the extension of capillaries beyond the sclerocorneal junction. The normal decrease in the number of vessels in the limbic plexus with age may be

TABLE 2.—Summary of Incidence of Symptoms and Signs in Forty-Seven Cases of Ariboflavinosis

	16 Hospitalized Patients	13 Out-patients	18 Apparently Well Persons	Totals
Photophobia.....	14	13	16	43
Burning of eyes.....	11	13	16	40
Dimness of vision.....	14	11	4	29
Burning lips and tongue.....	12	9	6	27
Seborrhea.....	14	9	6	25
Cheilosis.....	14	13	6	33
Glossitis.....	16	13	3	32
Conjunctivitis.....	16	13	14	37
Circumcorneal injection.....	13	10	18	41
Corneal vascularization.....	14	13	18	45
Corneal opacities.....	11	13	2	26
Pigmentation of the iris.....	9	7	12	28
Iritis.....	4	3	12	19
Cataract.....	4	..	..	4
	6	..	..	6

an obvious explanation. Gross injection of the vessels of the fornix and sclera without evidence of infection but for convenience tabulated as "conjunctivitis" was seen in all but four of those cases presenting circumcorneal congestion. Actual invasion of the cornea by capillaries arising from the limbic plexus was observed thirty-seven times, and extensive patterns of empty vessels were seen in two patients recalled for inspection. Superficial nebulas, seen grossly as slight "steaminess" of the cornea and with the slit lamp as a fine diffuse superficial opacity, were present in eighteen instances,

and superficial punctate opacities were present in two cases. Interstitial nebulas were relatively uncommon, occurring only six times, while posterior punctate opacities were seen only four times.

As was noted in our preliminary report, the high incidence of circumcorneal congestion suggests involvement of the iris in ariboflavinosis. Frank iritis was seen in four cases of the present series, and moderate congestion of the iris with accumulation of pigment on its anterior surface was seen nineteen times. The latter condition, which is tabulated as pigmentation of the iris, was recognized to be abnormal only after accumulations and spots of pigment frequently had been seen to disappear during the administration of riboflavin. Mydriasis was striking in four patients; the incidence and behavior of mydriasis and of disturbances of accommodation will be the subject of a separate report. Cataract was observed in six of the group, all elderly persons. The possible relation of riboflavin deficiency to cataract in the human subject is under investigation.

THE PROCESS OF CORNEAL VASCULARIZATION

The earliest change which can be recognized with the slit lamp is marked proliferation and engorgement of the limbic plexus with the production of great numbers of very narrow capillary loops which outline the extreme margins of the scleral digitations and obliterate the normal narrow avascular zone between the plexus and the sclerocorneal junction (fig. 1). This condition can definitely be considered abnormal and possibly specific because it was seen in six patients with cheilosis (patients 16, 20, 21, 22, 27, 33), five of whom also complained of photophobia, and in three patients with photophobia but no cheilosis (patients 31, 35, 37). It was observed to progress to vascularization of the cornea within a week in the absence of treatment (patients 13, 20) and to regress rapidly during the administration of riboflavin to the other seven patients.

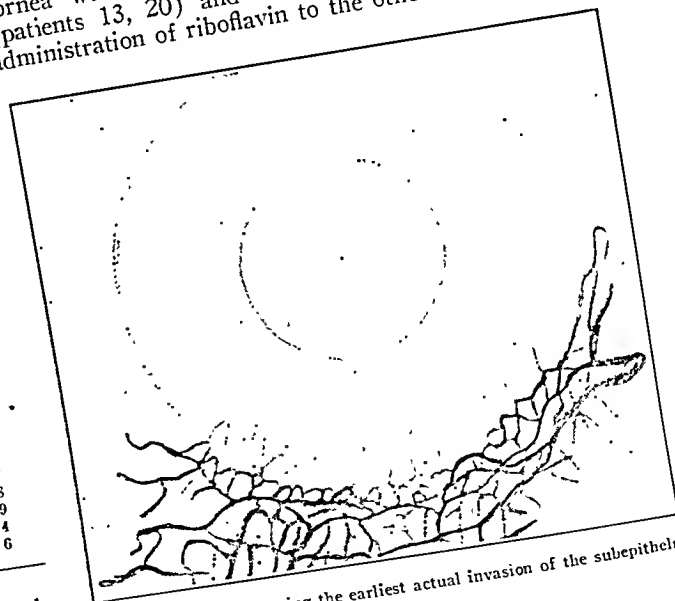


Fig. 2.—Diagram showing the earliest actual invasion of the subepithelial region of the cornea by capillaries.

The cornea is actually invaded first by very small capillaries arising from the apexes of loops surrounding the scleral digitations (fig. 2). These are most readily seen by retro-illumination and for optical reasons are most easily observed in the nasal and inferior quadrants of the cornea. Such capillaries lie just beneath the epithelium and soon anastomose to form a tier of loops from

which more single capillaries arise, extending centripetally. This process of anastomosis forms loops and projection of streamer-like capillaries from their apexes until extensive superficial vascularization is produced (figs. 3 and 4). Meanwhile, other penetrating vessels invade the substantia propria at varying depths. Much

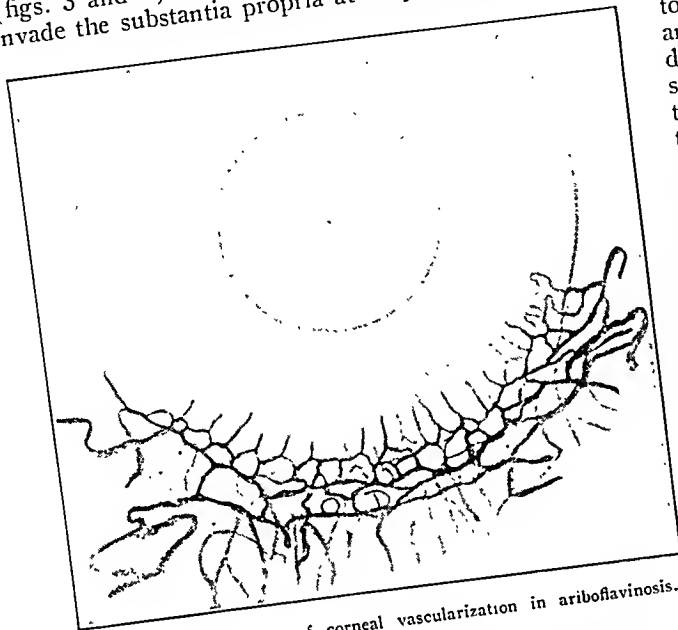


Fig. 3.—The progress of corneal vascularization in ariboflavinosis.

later capillaries extend deeply to form a plexus just within the endothelium; this was observed in three instances (cases 5, 8, 13). Superficial and interstitial opacities were observed to develop at various stages of the vascularizing process; the deposition of posterior opacities was not observed. In cases of chronic relapsing ariboflavinosis (cases 5, 8, 13, 46) the cornea presented universal vascularization and extensive superficial and interstitial nebulas. The superficial plexus has always been more extensive and complicated than the posterior in contrast to the predominant posterior vascularization in interstitial keratitis attributed to syphilis (fig. 5).

RESPONSE OF OCULAR SYMPTOMS AND SIGNS TO THE ADMINISTRATION OF RIBOFLAVIN

Photophobia and burning and itching of the eyes have responded regularly within forty-eight hours to the administration of daily doses of from 5 to 15 mg. of riboflavin. The most spectacular improvement was in patients with extreme photophobia and blepharospasm (patients 5 and 8, figs. 6, 7, 8).

The moderate photophobia of many patients was entirely alleviated twenty-four hours after the ingestion of from 3 to 5 mg. of the vitamin. Since the dimness of vision was largely subjective, the degree of improvement has been difficult to evaluate; all patients with mild objective impairment of visual acuity were relieved. Among the hospitalized patients who had determinations of visual acuity, improvement varied from 5/200 before treatment and 25/30 afterward in case 8 to no improvement in 25/30 vision in case 9.

The resolution of keratitis during the administration of riboflavin was rapid. The initial proliferation and congestion of the limbic plexus have always shown notable regression within forty-eight hours after the ingestion of from 6 to 10 mg. of the vitamin. Almost complete emptying of the capillary loops on the scleral digitations, narrowing and "beading" of the limbic loops from which

they arose and definite narrowing of the small veins in the limbic plexus occurred with regularity. When invasion of the cornea had progressed only to the stage of straight streamer-like capillaries, complete emptying of the invading vessels was observed once after only 4 mg. of riboflavin had been ingested in twenty-four hours; ordinarily from 5 to 10 mg. during thirty-six to forty-eight hours was required. Blanching of the lips and tongue was coincident with the emptying of redundant corneal vessels. When vascularization was extensive the time required for emptying all vessels thought to be capillaries varied from five to eighteen days. In the three cases of chronic recurring keratitis (cases 5, 8, 13) a number of very large vessels were present which were never entirely empty of flowing blood though they were greatly reduced in caliber and the flow of blood was interrupted. In all instances the vessels remained visible as refractile or grayish streaks depending on the method of illumination used in inspection. Opacities did not clear in any direct relation to the emptying or apparent occlusion of newly formed vessels. In the same patient during different experimental periods the resolution of exudates has preceded and followed the emptying of capillaries by two or three days. Superficial opacities disappeared more slowly than interstitial nebulas, and posterior deposits were the last to clear.

In relapse produced by the withdrawal of riboflavin, photophobia was the first symptom to recur and always followed the reappearance of conjunctival injection; there was no direct relation to the reopening of corneal vessels (figs. 9 and 10). Impairment of visual acuity paralleled the objective signs of relapse in cases 5 and 8. Conjunctival injection was stopped. At the same time congestion of the limbic plexus with refilling of empty vascular channels could be seen with the slit

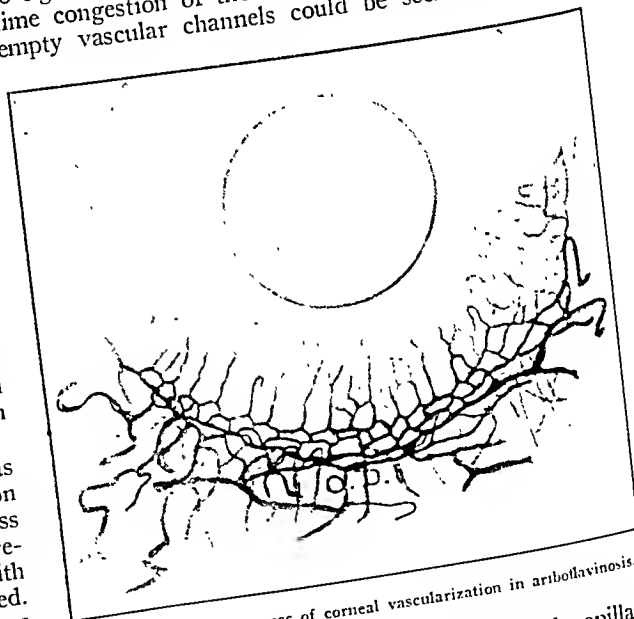


Fig. 4.—Further progress of corneal vascularization in ariboflavinosis.

lamp. With great regularity the superficial capillary plexus in the cornea reopened in from one to three days thereafter. Superficial and interstitial opacities became visible between the seventh and tenth days after withdrawal and tended to develop in the same regions of the cornea that had showed exudates before treatment. Cheilosis and glossitis seldom recurred before the end of the second week of experimental relapse.

The response of changes in the iris to the administration of riboflavin is the subject of continued investigation. In four cases of marked mydriasis (cases 22, 29, 36, 40) the pupils were greatly reduced in size and photophobia was much diminished after from three to five days of treatment. In nineteen cases (tables 1 and

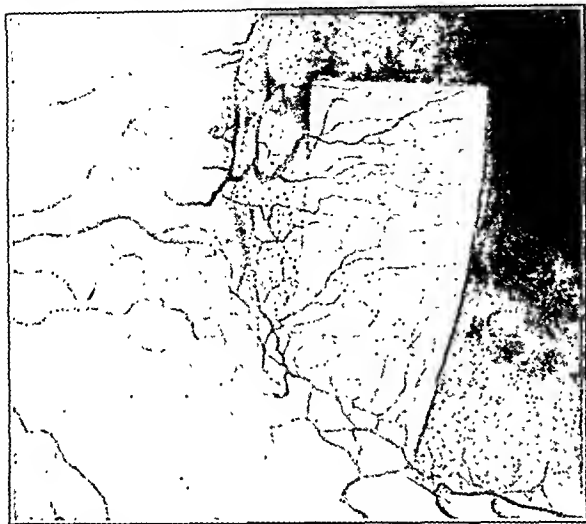


Fig. 5 (case 8).—Advanced dietary keratitis; semidiagrammatic drawing indicating the degree of vascularization of the cornea in spontaneous ariboflavinosis of long duration.

2) it was thought that abnormal pigmentation of the iris was present and that this was associated with congestion of the iris. The great variations in the appearance of the normal iris were given due consideration. In gray eyed individuals there were pigment spots on the iris, and in the brown eyed the detail of the anterior surface of the iris was obscured by shaggy accumulations of pigment. During treatment with riboflavin the pigment spots on the gray irises disintegrated, leaving areas of yellowish discoloration; in some instances particles of pigment seemed to become detached and could be seen in the lower angle of the anterior chamber. The brown irises lost their shaggy texture and the details of crypts and contraction furrows became sharply defined. Iritis was present in cases 5, 6, 8 and 12, with posterior synechiae in cases 5, 6 and 12. Marked resolution of exudate was observed in cases 5, 8 and 12 during treatment with riboflavin.

REPORT OF CASES

The following case reports are illustrative:

CASE 13.—B. W., a Negress aged 25, was admitted Nov. 3, 1939, with the diagnoses of peripheral neuritis and pellagra. She was emaciated and febrile and had diarrhea with from eight to ten stools daily. There was pellagrous dermatitis of the hands, elbows and ankles. Cheilosis and seborrhea were absent; there was slight redness of the edges of the tongue with no papillary atrophy. There was general lymphadenopathy and slight splenomegaly. The rectum and vagina showed typical lesions of venereal lymphogranuloma. There were marked sensory and reflex changes and great motor weakness in all four extremities. The blood contained 4.6 Gm. of hemoglobin per hundred cubic centimeters and 2,100,000 erythrocytes and 9,000 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were within normal limits. The content of vitamin A was 0.051 mg. per hundred cubic centimeters. The Wassermann and Kahn reactions were strongly positive. The cerebrospinal fluid showed no abnormalities. The Mantoux test was negative, the Frei test strongly positive. There was gastric achlorhydria after injection of histamine. Electrocardiograms showed small amplitude of QRS complexes and small T waves in all

leads; there were no conduction disturbances. Slit lamp examination showed proliferation of the limbic plexus and slight anterior opacity of both corneas. Tests of visual acuity showed 15/30 for the right eye and 15/40 for the left eye. The patient was given the basal diet supplemented with 2 cc. of percomorph liver oil, 50 mg. of thiamin chloride intramuscularly, 500 mg. of nicotinic acid, 5 mg. of riboflavin and 50 mg. of ascorbic acid daily. Antisyphilitic treatment and treatment for venereal lymphogranuloma were instituted. By November 20 all signs of pellagra had disappeared and there was great improvement in the symptoms and signs of peripheral neuritis, so that the patient was able to feed herself and walk with assistance. Diarrhea with three stools daily persisted and was attributed to rectal lesions of venereal lymphogranuloma. No change in the appearance of the eyes was noted during this time. The daily dose of thiamin chloride was reduced to 15 mg. given by mouth. The experimental diet was discontinued and regular ward diet provided. The blood showed 0.14 mg. of vitamin A and 0.88 mg. of nicotinic acid per hundred cubic centimeters. On December 1 it was noted that there were many fine white comedones over the alae of the nose, that the buccal surface of the lips was red and that the tongue was purplish red with flattened papillae. Examination of the eyes with the slit lamp showed invasion of both corneas by capillary loops and sprouts and an interstitial nebula in the right eye with increase of anterior opacity in both eyes. By December 3 cheilosis had increased markedly and the patient complained of soreness of the tongue and photophobia; there was slight increase in the vascularization of the corneas. Riboflavin was increased to 10 mg. daily. Photophobia was absent on December 5 and there was slight decrease in limbic congestion. By December 8 cheilosis was healed, the tongue looked normal, limbic congestion was much less, approximately half the corneal vessels were empty and the interstitial opacity in the right cornea had disappeared. On December 13 the seborrheic lesions about the nose were healed, all corneal vessels were empty, the limbic plexuses looked normal and anterior opacities were much less marked. Visual acuity was 15/15 in each eye. On December 27 riboflavin was discontinued. Relapse occurred on January 14, 1940. Administration of 15 mg. of riboflavin daily was begun on January 21, with cure by January 26.



Fig. 6 (case 8).—Severe ariboflavinosis showing facial lesions, cheilosis and extreme photophobia with blepharospasm.

This patient developed lesions of ariboflavinosis while she was taking 5 mg. of riboflavin a day with other vitamin supplements sufficient to cure mild pellagra and severe peripheral neuritis; 10 mg. of riboflavin daily produced rapid cure of all signs and symptoms.

CASE 20.—E. A., a white woman aged 54, was admitted Jan. 13, 1940, complaining of weak eyes, sore mouth and tongue and pruritus vulvae resistant to local and endocrine treatment.

She was well developed and well nourished. There was marked photophobia with lacrimation, the conjunctivas were much injected and the pupils were large but reacted to light and in accommodation. Slight seborrhea of the forehead and malar eminences was noted. There were severe cheilosis and glossitis, typical of ariboflavinosis. Dermatitis of the exposed skin areas was absent. Results of the general physical examination were



Fig. 7 (case 8).—Appearance after four days' treatment with riboflavin. Facial lesions are healed with marked photophobia persisting.

not significant. There was fiery red dermatitis of the perineum and adjacent inner surfaces of the thighs; the introitus and vagina were fiery red with a serous discharge. There were no neurologic abnormalities. The blood contained 14.2 Gm. of hemoglobin per hundred cubic centimeters and 4,250,000 erythrocytes and 8,500 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were normal. The vitamin A content was 0.48 mg., nicotinic acid 0.19 mg. and ascorbic acid 0.7 mg. per hundred cubic centimeters. The Wassermann and Kahn reactions were negative. The cerebrospinal fluid was normal in all respects. The Mantoux and Frei reactions were negative. Values for the gastric acidity were free hydrochloric acid 17, total acidity 73. Electrocardiograms were normal. Examination of the eyes with the slit lamp showed marked congestion and proliferation of the limbic plexus with very numerous loops and sprouting capillaries invading the cornea superficially and extending centripetally for about one fourth its radius. There was moderate anterior opacity of both corneas and several interstitial nebulas were noted in both. The irises seemed normal. Visual acuity was 15/20, 15/20. The patient was given the basal diet supplemented by 4 cc. of U. S. P. cod liver oil, 20 mg. of thiamin chloride, 300 mg. of nicotinic acid and 50 mg. of ascorbic acid. During the ensuing six days there was no marked change in cheilosis, glossitis or the perineal lesions. Photophobia increased slightly and there was some increase in the number of corneal vessels. January 19 5 mg. of riboflavin was added to the daily treatment schedule. January 21 photophobia was much less, though there were no evident changes in the eyes on slit lamp examination. The pruritus vulvae was very much diminished and there was some fading of the redness of the introitus. On the following day there was very evident emptying of the corneal vessels and of the limbic plexus. By January 24 all vessels in the cornea were empty and there was much clearing of the interstitial nebulas. February 1 the limbic plexus looked normal, slight anterior opacity persisted but interstitial opacity was not visible anywhere. Visual acuity was 15/20, 15/20.

CASE 23.—A. R., a white woman aged 50, was seen as an outpatient on Jan. 3, 1940, complaining of soreness of the tongue and lips and photophobia. She also complained of progressive dimness of vision over a period of two years, not helped by frequent changes in her glasses, and of inability to write legibly on account of poor vision. The patient was intelligent, appeared

well educated and had no financial problems, but for a long while she had used a limited diet on account of "colitis." She was well developed and well nourished. Photophobia, lacrimation and slight blepharospasm were present, the conjunctivas were injected, and the pupils were large with normal reaction to light and in accommodation. Seborrhea was absent. There was severe cheilosis with deep painful fissures of the commissures, and the tongue was magenta with large flattened papillae. General physical examination showed slight enlargement of the heart and moderate hypertension. There were no abnormal neurologic features. The blood contained 13.5 Gm. of hemoglobin per hundred cubic centimeters and 4,500,000 erythrocytes and 5,200 leukocytes per cubic millimeter. Dextrose and nonprotein nitrogen values were not increased; the Wassermann and Kahn reactions were negative. Ophthalmoscopic examination showed slight pericorneal injection, moderate opacity of the media and normal optic disks; the retinal arteries were small and somewhat tortuous. Examination with the slit lamp showed great congestion and proliferation of the limbic plexus with very many capillaries invading the cornea superficially and extending over about one third its radius in each eye; there were no interstitial or deep vessels. There was diffuse anterior opacity with small punctate anterior deposits of both corneas. The architecture of the irises was clear but there were numerous brown pigment spots on both.

The patient was advised to continue her dietary habits and was given riboflavin 10 mg. daily. Seven days later she returned for observation. Photophobia and lacrimation were absent and the widening of the lid slits was striking; the conjunctivas were clear and the pupils much smaller. Cheilosis and glossitis were healed and she volunteered the information that her appetite was much improved. Examination with the slit lamp showed striking diminution in the size and number of the limbic vessels. All vessels in the corneas were empty and the superficial opacities had diminished about 50 per cent. The anterior punctate deposits were not changed. The pigment spots on the irises were reduced about 50 per cent in size. The dose of riboflavin was reduced to 5 mg. daily. Ten days later all opacities and deposits were absent, the limbic plexus looked normal, all corneal vessels remained empty though readily visible, and all pigment spots on the irises had disappeared, leaving yellow stains. The patient volunteered the information



Fig. 8 (case 8).—Cure of keratitis, facial lesions and cheilosis after ten days' treatment with riboflavin.

that she was able to read signs in show windows across the street for the first time in two years.

CASE 28.—J. B., a white man aged 30, examined on Jan. 23, 1940, because of slight photophobia, was sparely nourished but well developed. There was evident photophobia with narrowing of the lid slits and marked lacrimation during examination with the slit lamp. The conjunctivas were mildly congested; the pupils seemed normal. Cheilosis and glossitis were absent. Slit lamp inspection showed great congestion and

proliferation of the limbic plexus and extensive superficial vascularization of the corneas, with capillary loops and sprouts extending centripetally about one third of the radius. There was slight anterior opacity of both corneas. There was a large pigment spot on the nasal portion of the right iris, but the irises seemed otherwise normal. The patient was advised not to modify his diet and was given 5 mg. of riboflavin daily.



Fig. 9 (case 8).—Relapse on the ninth day following withdrawal of riboflavin, with extreme photophobia and blepharospasm. There was complete refilling of corneal vessels.

January 25 photophobia was markedly less and the lid slits were wider. The slit lamp showed that the limbic plexus was much less congested and that all the terminal sprouts and a great many of the invading loops in the corneas were empty; no change was evident in the anterior opacities but the pigment spot on the right iris was disintegrating. January 28, the fifth day of treatment, the limbic plexus looked normal. All vessels in the cornea were empty except two very large horizontally directed vessels on the nasal quadrant of the left cornea; the opacities were hardly visible and the pigment spot on the right iris had disappeared, leaving a slight yellowish stain. By February 2 all vessels in the cornea were empty and the opacities cleared. It was notable that the expression of the patient was changed by the absence of his habitual squint.

CASE 35.—D. E., a white man aged 24, examined on Feb. 2, 1940, had no complaints but was examined in the course of a survey of employees of an institution among whom signs of ariboflavinosis were extraordinarily frequent. Nutrition and development were excellent. There was evident photophobia with slight lacrimation, the conjunctivas were mildly injected and the pupils were wide. Cheilosis and glossitis were absent. Inspection with the slit lamp showed engorgement and proliferation of the limbic plexus in each eye with rather large capillary loops outlining the extreme periphery of each scleral digitation. Careful examination failed to show any vessels actually invading the cornea. There were no nebulas. There were several pigment spots on each iris but no evidence of exudates. Riboflavin, 3 mg. daily, was prescribed and the patient was advised against changes in diet. February 5 there was obvious absence of photophobia and lacrimation during examination. The vessels of the limbic plexus were much less prominent, many of the capillary loops outlining the scleral digitations were empty and in many others the flow of blood had stopped, though "beads" of trapped cells were visible. It was estimated that only about 25 per cent of these loops remained open. The pigment spots on the irises had diminished in size and density. February 9 photophobia was absent, the pupils were much smaller, the limbic plexus looked normal and all loops in the digitations of the sclera were empty; the pigment spots were represented by yellow stains with a few granules of pigment still adhering.

COMMENT

The observations on keratitis due to riboflavin deficiency recorded in our preliminary report have been considerably extended and evidence has been secured that certain changes in the iris as well may be a manifestation of this avitaminosis. Functional disturbances of vision out of proportion to visible changes in the cornea were present in a number of patients with oral and lingual as well as ocular lesions of ariboflavinosis. Ocular and oral lesions were observed during their development on a diet lacking in riboflavin but supplemented with adequate amounts of other vitamins. Similar lesions were seen in patients with definite histories of dietary deficiency. In a relatively large group of apparently normal persons with access to an adequate diet but complaining of functional ocular disturbances, mild keratitis and iritis were present but oral lesions were recognized in only one third. In every instance there were relief of functional disturbances and marked improvement or cure of visible anatomic lesions during the administration of riboflavin. In seven of the sixteen hospitalized patients and eleven of the thirty-one ambulant subjects, riboflavin was withheld after cure was apparently complete. Relapse occurred in every instance and cure was again obtained by the administration of the vitamin. Ocular symptoms and signs recurred quite regularly before cheilosis or glossitis was evident.

The incidence of ariboflavinosis as an apparently uncomplicated avitaminosis was surprisingly high in the present series. Fourteen of the patients had signs of pellagra or were known to have had them within a year. The remaining twenty-three had never had the symptoms or signs commonly associated with that syndrome. Gastrointestinal or biliary disease was present in only three instances. Bad dietary habits with inadequate intake of milk, eggs and green vegetables were prevalent in the entire group. It seems possible that



Fig. 10 (case 8).—Cure of relapse on the eleventh day of treatment with riboflavin.

other conditioning factors as yet undetermined may be potent in the production of ariboflavinosis.

The signs of human ariboflavinosis were first recognized by Sebrell and Butler⁴ in patients maintained on an experimental diet very low in riboflavin. Redness of the buccal surface of the lips, abnormal redness and

4. Sebrell, W. H., Jr., and Butler, R. E.: Riboflavin Deficiency in Man, *Public Health Rep.* 53: 2282 (Dec. 30) 1938; Riboflavin Deficiency in Man (Ariboflavinosis), *ibid.* 54: 2121 (Dec. 1) 1939.

desquamation of the vermilion areas, maceration of the commissures of the lips with subsequent fissuring and the production of rhagades were constant. Seborrhea of the nasolabial folds, alae nasi, eyelids and ears was frequent. Further observations have shown that seborrhea and follicular keratosis of the forehead, malar eminences and chin, the so-called "shark skin" eruption, are common. Very often there are fine filiform comedones over the cheeks and chin which simulate "urea frost." These lesions of the face and lips have long been considered signs of pellagra and have been described under various names.⁶ Subsequent clinical reports⁶ have confirmed the specificity of these signs for riboflavin deficiency. Recently a specific type of glossitis has been described.⁷ The tongue is clean, purplish red or magenta and frequently fissured. The papillae are large and flattened or mushroom shaped, giving the organ a coarsely granular texture. This type of glossitis is constantly present in patients with cheilosis and seborrheic lesions and may precede these manifestations. We frequently have seen it develop in pellagrins whose scarlet, denuded and atrophic tongues had become normal under treatment with nicotinic acid but whose diet remained deficient in riboflavin for several weeks. This glossitis has caused much confusion in the interpretation of the results of treatment of nicotinic acid deficiency since it has commonly been considered a sign of relapse of typical pellagra. Symptoms associated with the labial and lingual signs of ariboflavinosis are soreness of the lips and tongue, often with persistent burning paresthesia, pain on opening the mouth caused by stretching of the commissural fissures and sometimes dysphagia from tenderness of the tongue. Dermatitis, which is such a constant lesion in the ariboflavinosis of rats, has no definite parallel in human beings, though healing of dry scaling dermatitis of the hands and of universal seborrheic dermatitis has been observed during treatment with riboflavin.⁸

Several observers previously have noted ocular symptoms and signs in patients with the oral signs of ariboflavinosis.⁹ Spies, Vilter and Ashe¹⁰ noted impairment of vision, burning of the eyes, mydriasis and conjunctivitis in 70 per cent of one of their series of pellagrins. Though the symptoms and signs were suspected of being evidence of vitamin A deficiency, it was noted that a number of patients were relieved by the administration of riboflavin. Spies described similar symptoms in fifty cases of malnutrition which were relieved by the administration of oleum percomorpheum or carotene.

Pock-Steen¹¹ described conjunctival irritation, photophobia, dimness of vision, poor vision in dim light (aknephascopia), mydriasis, disturbances of accommodation and keratitis in 109 patients with sprue. These symptoms and signs were cured by riboflavin in seventy-eight instances. No report on the minute examination of the cornea and iris in human ariboflavinosis had appeared prior to our preliminary observations,¹ though the experimental background is unusually suggestive.

Goldberger and Lillie¹² in 1926 observed "ophthalmia," fissures at the angles of the mouth, glossitis and a specialized type of dermatitis in rats deprived of the heat stable fraction of yeast. Day and his collaborators,¹³ O'Brien¹⁴ and Bourne and Pyke¹⁵ have emphasized the incidence of cataract and of keratitis in rats maintained on a diet lacking in riboflavin. Day, Darby and Langston¹⁶ showed that these eye lesions could be prevented by the administration of "vitamin G," and Day and others noted that corneal opacities visible with the ophthalmoscope disappeared during treatment with riboflavin (vitamin G) but that cataract seemed to be an irreversible lesion. El Sadr¹⁷ also was able to cure all ocular lesions in rats except cataract with riboflavin after "ophthalmia" had been produced by a flavin deficient diet. O'Brien¹⁴ was able to arrest the progress of cataract at any stage by the administration of substances rich in riboflavin but did not report resolution of lenticular changes. Bessey and Wolbach¹⁸ and Eckardt and Johnson¹⁹ were unable to produce cataract in rats with any regularity by riboflavin deprivation, but both groups of observers noted the high incidence of keratitis in their animals. Bessey and Wolbach using the slit lamp in vivo and injection methods post mortem found that vascularization of the cornea was the earliest and most constant manifestation of riboflavin deficiency in the rat. Superficial and interstitial opacities occurred later from leukocytic infiltration of the epithelium and substantia propria. The newly formed vessels were rapidly occluded and exudates were absorbed after the administration of riboflavin. Lesions of the iris have not been noted in animal experiments, though O'Brien seems to have been the only investigator to mention the histologic appearance of this structure. This author also noted that mydriasis was an early sign of riboflavin deficiency in his animals.¹⁴

Our observations would indicate that there is a singular parallelism between the ocular lesions of

5. Stannus, H. S.: Pellagra in Nyasaland, *Tr. Soc. Trop. Med. & Hyg.* 5: 112, 1912. Landor, J. V., and Pallister, R. A.: Avitaminosis B₂, *Ibid.* 28: 121, 1935. Aykroyd, W. R., and Krishnan, B. G.: Stomatitis Due to Vitamin B₂ Deficiency, *Indian J. M. Research* 24: 411 (Oct.) 1936. Aykroyd, W. R.; Krishnan, B. G., and Passmore, Reginald: Stomatitis of Dietary Origin, *Lancet* 2: 825 (Oct. 14) 1939.
6. Oden, J. W.; Oden, L. H., Jr., and Sebrell, W. H.: Report of Three Cases of Ariboflavinosis, *Pub. Health Rep.* 54: 790 (May 12) 1939. Spies, T. D.; Bean, W. B., and Ashe, W. F.: Recent Advances in the Treatment of Pellagra and Associated Deficiencies, *Ann. Int. Med.* 12: 1830 (May) 1939. Jolliffe, Norman; Fein, H. D., and Rosenblum, L. A.: Riboflavin Deficiency in Man, *New England J. Med.* 221: 921 (Dec. 14) 1939. Sydenstricker, Geeslin, Templeton and Weaver.⁸ Spies, Vilter and Ashe.¹⁰
7. Jolliffe, Norman: Personal communication to the authors. Kruse, Sydenstricker, Sebrell and Cleckley.¹
8. Sydenstricker, V. P.; Geeslin, L. E.; Templeton, C. M., and Weaver, J. W.: Riboflavin Deficiency in Human Subjects, *J. A. M. A.* 113: 1697 (Nov. 4) 1939. Kruse, Sydenstricker, Sebrell and Cleckley.¹
9. Spies, T. D.: A Note on the Ocular Symptoms and Signs Occurring from Malnutrition in Human Beings, *Am. J. M. Sc.* 198: 40 (July) 1939; The Beneficial Effects of Synthetic Cocarboxylase on Nutritional Polyneuritis (Beriberi) and of the Synthetic Phosphoric Acid Ester of Riboflavin in the Treatment of Riboflavin Deficiency in Man, *South. M. J.* 32: 618 (June) 1939. Sydenstricker, Geeslin, Templeton and Weaver.⁸ Spies, Bean and Ashe.¹⁰ Spies, Vilter and Ashe.¹⁰
10. Spies, T. D.; Vilter, R. W., and Ashe, W. F.: Pellagra, Beriberi and Riboflavin Deficiency in Human Beings: Diagnosis and Treatment, *J. A. M. A.* 113: 931 (Sept. 2) 1939.

11. Pock-Steen, P. H.: Eye Symptoms in Patients with Leiodystonia and Sprue: Aknephascopia, *Geneesk. tijdschr. v. Nederl.-Indië* 78: 1986 (Aug. 8) 1939.
12. Goldberger, Joseph, and Lillie, R. D.: A Note on an Experimental Pellagra-like Condition in the Albino Rat, *Pub. Health Rep.* 41: 1025 (May 28) 1926.
13. Day, P. L.; Langston, W. C., and O'Brien, C. S.: Cataract and Other Ocular Changes in Vitamin G Deficiency: Experimental Study on Albino Rats, *Am. J. Ophth.* 14: 1005 (Oct.) 1931. Langston, W. C., and Day, P. L.: Nutritional Cataract in the Norway Rat, *South. M. J.* 26: 296 (Feb.) 1933. Langston, W. C.; Day, P. L., and Cosgrove, W. W.: Cataract in the Albino Mouse Resulting from a Deficiency of Vitamin G (B₂), *Arch. Ophth.* 10: 508 (Oct.) 1933. Day, P. L., and Langston, W. C.: Further Experiments with Cataract in Albino Rats Resulting from the Withdrawal of Vitamin G (B₂) from the Diet, *J. Nutrition* 7: 97 (Jan.) 1934. Langston, W. C., and Day, P. L.: Arrest of Nutritional Cataract in Albino Rats by the Use of Vitamin G (B₂), *South. M. J.* 27: 170 (Feb.) 1934. Day, Darby and Langston.¹⁶
14. O'Brien, C. S.: Experimental Cataract in Vitamin G Deficiency, *Arch. Ophth.* 8: 880 (Dec.) 1932.
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16. Day, P. L.; Darby, W. J., and Langston, W. C.: Identity of Flavin with Cataract-Preventive Factor, *J. Nutrition* 13: 289 (April) 1937.
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19. Eckhardt, R. E., and Johnson, L. V.: Nutritional Cataract and Relation of Galactose to Appearance of Senile Suture Line in Rats, *Arch. Ophth.* 21: 315-327 (Feb.) 1939.

experimental ariboflavinosis in rats and those of the experimental and spontaneous avitaminosis in human subjects. All grades of corneal vascularization, curable with riboflavin, have been seen. Before actual invasion of the cornea by capillaries there is striking increase in the size and number of the vessels composing the limbic plexus, the capillaries are large and turgid and obviously increased in number, the normal narrow avascular zone between the limbic plexus and the sclerocorneal junction is replaced by a dense capillary network and each scleral digitation is outlined by a capillary loop. This appearance, which would not otherwise have been considered abnormal, was associated with ocular symptoms, particularly photophobia and burning and itching of the eyes, and it disappeared during the administration of riboflavin. It would seem that proliferation and congestion of the limbic plexus, often visible grossly as pericorneal injection, is the earliest sign of ariboflavinosis. In five of our cases this was true, though other signs were recognized later. Frequent examination with the slit lamp has shown that only a few days may elapse before actual invasion of the cornea by capillaries. Abnormal accumulation of pigment (probably of pigment bearing wandering cells) on the anterior surface of the iris has been striking in the majority of our early cases. The significance of this sign is not yet apparent, and we are not yet able to differentiate between "hazel spots" and pigment spots on the gray iris except by therapeutic test. The shaggy smoothed out appearance of the brown iris in ariboflavinosis is more easily recognized. In both types of irises there has been evidence of congestion of the iridic plexus in every instance of hyperpigmentation.

Many of our cases were in the early stages of keratitis and were not allowed to progress to the development of interstitial vascularization or of exudation. The relative incidence of signs and symptoms in tables 1 and 2 therefore represents various stages and the course of events in the progress of the condition rather than the variability of the pathologic condition at one stage. Particularly it should be noted that the more severe manifestations, such as exudates and opacities, have regularly appeared when riboflavin deprivation was allowed to continue. For the same reason superficial vascularization and opacity were more frequent than deep. The "dietary keratitis" always begins as a superficial or subepithelial vascularization of the cornea, superficial opacity is apt to follow, and later the invading vessels penetrate the substantia propria and are not apt to form a posterior plexus unless the deficiency is severe and prolonged. Interstitial nebulas may appear at any time after vascular invasion of the substantia propria; "posterior deposits" have been rare and occur only in the advanced cases with subendothelial vascularization. It is striking and probably significant that the vascularization of dietary keratitis is predominantly anterior while that of "syphilitic" keratitis is posterior. The late stages of the two conditions may be strikingly similar in appearance.

The functional disturbances of the eye associated with ariboflavinosis are of great interest. Photophobia, dimness of vision and ocular discomfort not improved after correction of refractive defects have been exceedingly common in our patients. Slit lamp examination has not failed to show some abnormality of the cornea or iris in patients complaining of these symptoms. The administration of riboflavin has caused prompt and sometimes dramatic relief of symptoms as well as resolution of

signs. When a slit lamp is not available it would seem justifiable to give riboflavin in adequate amounts to patients with such complaints as a therapeutic test. The questions of the possible relation of ariboflavinosis to such functional disturbances as spastic mydriasis and accommodation defect and such organic changes as cataract and iritis are important and will be the subjects of future reports. A possible relation of riboflavin to the function of vitamin A is suggested by the similarity of the visual disturbances attributed to the two vitamins.

The physiologic background for the production of ocular lesions by riboflavin deficiency has been presented by Bessey and Wollbach.¹⁷ Assuming that riboflavin is essential for the respiratory processes of all living cells, that normally it is ubiquitous and that the cornea respire only through its epithelial layer, the transfer of oxygen from the air to the deeper layers of the cornea must depend on the ability of the epithelium to transport it. Since riboflavin is apparently essential for the transportation of oxygen through the epithelium, when it is lacking asphyxia of the substantia propria results and vascularization of the cornea occurs as a compensatory process to bring blood in closer contact with the deeper layers.

SUMMARY AND CONCLUSIONS

Forty-seven patients with ocular symptoms and signs were cured by the administration of riboflavin. Examination with the slit lamp showed that proliferation and engorgement of the limbic plexus was the earliest lesion; this progressed to superficial vascularization of the cornea and the production of interstitial keratitis. Exudates were relatively infrequent but occurred in all the layers of the cornea.

Ocular symptoms were frequently those hitherto attributed to vague etiologic factors such as "toxic states," "focal infection" and "eye strain." Photophobia, dimness of vision and actual impairment of visual acuity were promptly, even dramatically, relieved by the administration of riboflavin, in some instances before visible changes occurred in the cornea.

Congestion of the sclera, vascularization and opacities of the cornea and abnormal pigmentation of the iris responded rapidly to the administration of riboflavin. When other signs of ariboflavinosis were present, they disappeared concurrently with the ocular lesions.

Ariboflavinosis is possibly the most prevalent apparently uncomplicated avitaminosis; it is possible also that it is more easily recognized than others on account of the specific lesions of the eye which occur early in the period of deficiency. The various factors contributing to clinical ariboflavinosis are not yet known.

Reference to Epilepsy in the Bible.—The first reference to epilepsy in the Bible is said to be the case of Balaam, the son of Beor, who fell into a trance with his eyes open and saw visions and heard the words of God. This has been described by certain of the older writers as a case of 'Furor a Dionysio.' . . . Other cases occur in the New Testament which are even more striking and characteristic. Such, for instance, is the case of Saul who, on the road to Damascus, had a definite optical aura, followed by a fall to the ground due to the commencing tonic spasm, and on partial recovery had hallucinations of the special senses and had to be led away in a condition of postepileptic stupor which lasted some three days, during which period he took no food. From this state he began to recover after the visit of Ananias, took food "and was strengthened" and slowly made a complete recovery.—Whitwell, J. R.: *Historical Notes on Psychiatry*, London, H. K. Lewis & Co., Ltd., 1936.

THE TREATMENT OF PREPUBERAL VULVOVAGINITIS WITH A NEW SYNTHETIC ESTROGEN

PRELIMINARY REPORT

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AND

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NEW ORLEANS

The first attempt to treat vulvovaginitis in infants and children with estrogenic biologic substance was in 1933, when Lewis¹ used it intramuscularly in eight cases. He succeeded in curing six cases. Subsequent attempts by others resulted in variable responses. Te Linde and Brawner² were successful in curing only one case in eleven, and Witherspoon³ failed to obtain any successful result in ten cases. On the other hand, Goldberg, Minier and Smith⁴ cured seven of nine cases and Limper and Hieronymus reported cures in twenty-four of their series of twenty-seven cases.

All these investigators used the biologic estrogens intramuscularly and in suppositories, because attempts

recommends the nightly use of a suppository containing from 600 to 1,000 international units. The duration of treatment varied from three to six weeks. In a previous study, one of us⁶ obtained similar results in a series of twenty-six cases. Equally good results were reported by Mayer.



Fig. 1.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis before institution of treatment, showing typical infant vaginal mucosa.

to administer them orally had been unsatisfactory. For example, Te Linde⁵ used them orally in doses of from 3,000 to 16,000 international units for periods of from sixty-nine to 123 days without success. British physicians also used daily doses of from 3,000 to 6,000 units orally with equally unfavorable results. The duration of their treatment varied from a few weeks to a few months.

Te Linde has shown that the vaginal administration of suppositories containing biologic estrogens is far more efficacious than either the oral or the hypodermic route. In a series of 175 cases all were cured. He

Dr. Robert A. Strong, of the Department of Pediatrics, Tulane University of Louisiana, gave advice in the preparation of this article. This study has been made possible by a grant from the Anonymous Research Fund of Tulane University and the Medical Research Division of Winthrop Chemical Company.

From the Department of Pediatrics and the Department of Gynecology, Tulane University of Louisiana School of Medicine, and the Hutchinson Memorial Clinic and Charity Hospital Clinic.

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2. Te Linde, R. W., and Brawner, J. N., Jr.: *Am. J. Obst. & Gynec.* 30: 512 (Oct.) 1935.

3. Witherspoon, J. T.: *Treatment of Gonorrheal Vulvovaginitis in Childhood with Ovarian Follicular Hormone. Series of Cases in Which Treatment Was Unsuccessful*, *Am. J. Dis. Child.* 50: 913 (Oct.) 1935.

4. Goldberg, L. E.; Minier, C. L., and Smith, E. L.: *J. Pediat.* 7: 401 (Sept.) 1935.

5. Te Linde, R. W.: *Treatment of Gonococcal Vaginitis with Estrogenic Hormone: Further Studies*, *J. A. M. A.* 110: 1633 (May 14) 1938.

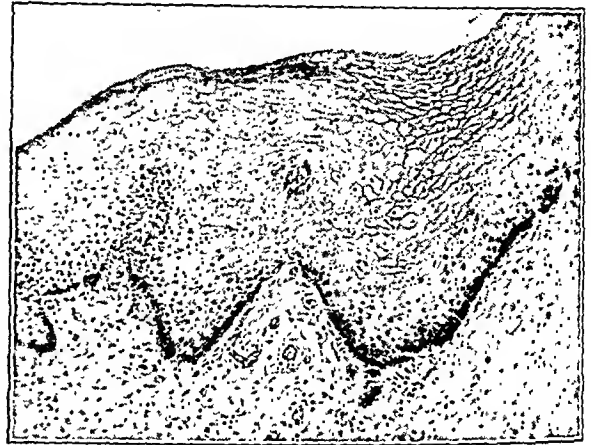


Fig. 2.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis five days after institution of treatment with diethylstilbestrol, showing marked adult type of mucosa.

These results prove the efficacy of the biologic estrogens in the treatment of prepuberal vulvovaginitis and indicate that thus far the vaginal mode of administration is superior to the intramuscular and oral routes.

DIETHYLSTILBESTROL

Dodds and his co-workers⁷ in 1938 introduced a new synthetic preparation, 4:4-dihydroxy-alpha:beta-diethyl stilbene, known to British investigators also simply as diethylstilbestrol. They claim that it possesses marked estrogenic properties. When standardized by the Allen-Doisy method, 1 mg. was found to have the same activity as 25,000 international units of estrone.



Fig. 3.—Section of vaginal mucous membrane from patient with gonorrheal vulvovaginitis seven days after cessation of treatment with diethylstilbestrol, showing adult type of mucosa and illustrating marked cornification.

Diethylstilbestrol has been proved to be an active estrogen in human beings as well as in experimental animals, and numerous reports of its use in adults confirm this.

6. Collins, C. G.; Weed, J. C.; Weinstein, B. B., and Lock, F. R.: *Am. J. Obst. & Gynec.*, to be published.

7. Dodds, E. C.; Goldberg, L.; Lawson, W., and Robinson, R.: *Nature*, London 141: 247 (Feb. 5) 1938. *Structure of Proteins*, *ibid.* 143: 34 (Jan. 7) 1938. Dodds, E. C.; Lawson, W., and Noble, R. L.: *Lancet* 1: 1389 (June 18) 1938.

One of us (C. G. C.) used this substance intramuscularly in the treatment of menopausal symptoms in a series of fifty women and found it as efficacious as the biologic estrogens in controlling the unpleasant subjective symptoms manifested. In an additional fifty cases, in which we have used the drug orally for the same purpose, we have obtained similarly good results. It is apparently as effective orally as it is intramuscularly.

Studies on the toxicity of diethylstilbestrol indicate a broad margin of safety between the toxic and the effective dose for the laboratory animal. The intravenous lethal dose for the cat (the lowest for any animal tested) is 30 mg. per kilogram. We have not observed any toxic effects in patients to whom we have administered the drug. The only unpleasant symptom noted in our series of menopausal cases has been occasional nausea.

MATERIAL

Our material for this report consists of twenty-five cases of gonorrheal vulvovaginitis from the departments of pediatrics and gynecology of the Hutchinson Memorial Clinic and the Charity Hospital clinics. All cases

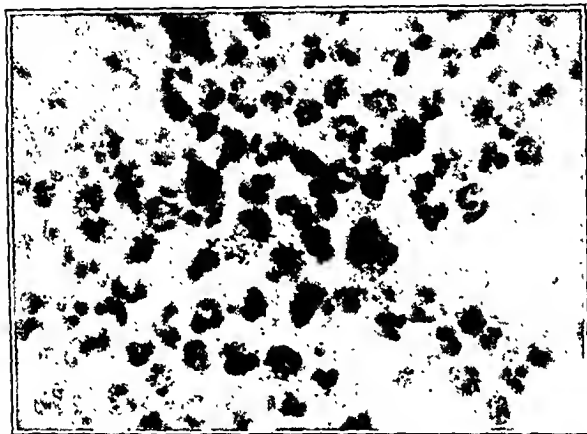


Fig. 4.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis, showing pus cells, gram-negative intracellular diplococci and an occasional immature nucleated epithelial cell.

were proved gonorrheal by smears stained by Gram's method and checked both by the pathology laboratories of Charity Hospital and by us. The youngest child treated was 20 months and the oldest was 12 years of age. There were six white and nineteen Negro children treated. The social service departments of Charity Hospital and the Hutchinson Memorial Clinic cooperated closely in having these patients keep their clinic appointments, and as a consequence opportunity was afforded us to keep a constant check on each case. Following the diagnosis and institution of treatment the patients reported weekly for three weeks, at which times smears were made and examined. Following three negative smears the patients were instructed to report at monthly intervals until two more consecutive negative smears were obtained. Thus when five consecutive negative smears were obtained the patient was discharged.

METHOD AND RESULTS

On diagnosis of gonorrheal vulvovaginitis the child, irrespective of age, weight, duration of symptoms or previous therapy, was given a 1 mg. tablet of diethylstilbestrol three times a day until twenty had been taken. The tablet was crushed and administered in 2 ounces (60 cc.) of milk. The usual prophylactic

methods and instructions were given to the mother, but the only form of treatment given was orally administered diethylstilbestrol. In twenty-two cases negative smears for pus and gonococci were obtained at the end of seven days of treatment. Two cases required nine days of treatment (27 mg.) and eighteen days of treat-



Fig. 5.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis five days after treatment with diethylstilbestrol, showing very large cornified epithelial cells with pyknotic nuclei. Pus cells and gram-negative diplococci have completely disappeared.

ment (54 mg.) respectively to produce a cure. The smear then showed only large cornified epithelial cells, some with pyknotic nuclei and mucus. We have noticed the same condition in vaginal smears from patients with senile vaginitis whom we have treated with stilbestrol.

Within seventy-two to ninety-six hours the discharge changes in character, becoming thin, mucoid and white. The latter type of discharge persists throughout treatment, and complete disappearance of any type of discharge is noted within one or two weeks after discontinuance of treatment. The thick greenish yellow discharge definitely diminishes in amount within thirty-six to forty-eight hours.



Fig. 6.—Smear of material taken from the vagina of an infant with gonorrheal vulvovaginitis fourteen days after cessation of treatment with diethylstilbestrol, showing cornified epithelial cells, immature epithelial cells and a large number of Doederlein and lactic acid bacilli. No pus cells or gram-negative intracellular diplococci are seen.

In the first few cases treated some nausea and vomiting were noted, but these symptoms have not been observed since we have administered the drug in milk. In no case did vaginal bleeding occur. In approximately two thirds of the cases a darkening of the nipple and areola occurred, together with slight painless enlarge-

HISTAMINASE IN THE TREATMENT
OF HAY FEVEREDMUND L. KEENEY, M.D.
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ment of the breasts. In several cases pigmentation and painless enlargement of the vulva also was noted. In all cases these symptoms disappeared within three weeks of discontinuance of the drug.

We have observed eight of these cases for three months after discontinuance of therapy and there have been no recurrences in any of them. Seven cases have been observed for from two to three months. In the latter group two reinfections have occurred; in both cases a positive smear was obtained following two negative smears. Thorough investigation revealed that the two children slept in the same bed with a sister who proved to have gonorrheal vaginitis. Both patients were retreated with 20 mg. of stilbestrol and negative smears were obtained at the end of seven days. Both patients have had three negative smears following the second course of treatment. Their sisters also responded to therapy and are included in this series. Ten cases have

Results of Treatment

Case	Gonocoeel	Age, Yrs.	Total Dose, Mg.	Inter-national Units	Duration of Treatment, Days	Recur-rence	Number of Negative Smears	Previous Therapy
1	+	6	20	500,000	7	No	5	None
2	+	4	20	500,000	7	No	5	None
3	+	4	20	500,000	7	No	5	None
4	+	4	20	500,000	7	No	5	None
5	+	5	20	500,000	7	No	5	None
6	+	3	20	500,000	7	No	5	None
7	+	4	20	500,000	7	No	5	None
8	+	6	20	500,000	7	No	5	Gonocoeel filtrate, prontosil tablets, 50 grains, theelin suppositories
9	+	5	54	1,350,000	18	No	5	Sulfanilamide, 285 grains
10	+	7	20	500,000	7	No	4	None
11	+	11	20	500,000	7	No	4	None
12	+	4	20	500,000	7	No	2	None
13	+	4	20	500,000	7	No	3	None
14	+	1½	20	500,000	7	No	5	None
15	+	6	20	500,000	7	No	5	None
16	+	8	27	675,000	9	No	2	None
17	+	3	27	675,000	9	No	5	None
18	+	9	20	500,000	7	No	4	None
19	+	2½	20	500,000	7	No	4	None
20	+	4	20	500,000	7	No	2	None
21	+	6	20	500,000	7	No	2	None
22	+	7	20	500,000	7	No	2	None
23	+	4	20	500,000	7	No	2	None
24	+	8	20	500,000	7	No	2	None
25	+	12	20	500,000	7	No	2	None

* Indicates the two cases of reinfection or recurrence mentioned in the text.

been followed for from two weeks to two months after the discontinuance of therapy, and as yet there has been no evidence of recurrence.

COMMENT AND CONCLUSIONS

At the present time we are enthusiastic about the use and efficacy of diethylstilbestrol orally in the treatment of infant vulvovaginitis. The fact that this synthetic estrogen can be taken orally in milk eliminates the possibilities of the child's knowing that she is taking a drug as well as becoming "genital conscious," as might be the case when suppositories are used. Furthermore, the rapidity of cure, the absence of toxic or deleterious effects and the ease of administration as regards both the family and the physician lead us to believe that it is an ideal drug for the treatment of vulvovaginitis. The fact that diethylstilbestrol is synthetic and is required for such a short period makes it an economical method of treatment as compared to all previous biologic hormones.

Medical Arts Building.

Best¹ demonstrated, from the results of in vitro experiments, that a histamine inactivating substance existed. Later Best and McHenry² proved the specificity of this inactivating substance for histamine and accordingly suggested that the inactivating substance be known as histaminase. Histaminase has now become a popular drug for clinical experimentation in allergic diseases and allied disorders. The foundation for this clinical experimentation is based entirely on the hypothetical assumption that the allergic reaction is caused by the liberation of "H-substance" at the site of contact of antibody with antigen and on the probability that histaminase might inactivate the "H-substance," which is similar but not identical to histamine. Histaminase has been reported to be effective in the treatment of hay fever,³ urticaria,⁴ angioneurotic edema,⁵ allergic eczema,⁶ seborrheic eczema,⁷ acne vulgaris,⁷ Ménière's disease,⁸ gastrointestinal allergy,⁸ ulcerative colitis,⁹ cold allergy¹⁰ and serum sickness.¹¹ Recently histaminase (Winthrop) has been made commercially available and has been widely advertised as a drug effective in the treatment of allergic diseases.

It is extremely difficult to establish satisfactory evidence for the effectiveness of therapeutic agents in any of the so-called allergic diseases. This is due in part to the difficulty in determining the exact etiologic factors. Even when these factors can be determined they cannot always be controlled sufficiently to permit the formulation of satisfactory conclusions.

Seasonal hay fever is a typical disease of allergy and its etiology can be specifically determined. Furthermore, the symptoms of hay fever are in direct proportion to the amount of pollen in the atmosphere. The pollen concentration of the atmosphere can be easily determined by exposing specially prepared slides in various locations and counting the number of pollen grains in a measured area on the slides. Therefore the effectiveness of specific therapy in hay fever patients can be accurately determined by comparing the daily symptomatology records with the daily pollen counts. Since histaminase is advocated as a drug effective in controlling disorders of an allergic nature, it seemed that its benefits could be most accurately determined by its use in the treatment of patients with seasonal hay fever. Furthermore, since its effectiveness is sup-

From the Protein Clinic, Department of Medicine, the Johns Hopkins University School of Medicine and Hospital.

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Moldenshardt.

posedly due to its ability to inactivate histamine, it seemed important to observe, simultaneously, the effect of histaminase on the histamine reaction.

Fifteen patients known to have typical symptoms of hay fever beginning about the middle of August and lasting until the first frost were chosen for study. Each patient gave a typical positive intradermal reaction to a weak dilution of both giant and short ragweed extract. On Aug. 10, 1939, a record of daily pollen counts was started and was continued throughout the entire ragweed hay fever season. On August 23 the pollen concentration reached a height sufficient to produce typical symptoms of hay fever in all fifteen patients. Histaminase therapy was immediately begun and a daily symptom record was started for each patient. The histaminase was administered orally. The patients were first instructed to take 45 units of histaminase daily, but later the dose for six of the patients was increased to 60 and 75 units a day. After two days of treatment each patient reported improvement. However, the improvement could be accounted for by a sudden drop in the pollen counts following a heavy rainfall. Subsequently, with a rise in the pollen count the hay fever symptoms of all the patients reappeared and continued to become more severe as the pollen concentration continued to increase. Observations were conducted for a period of from ten to twenty-one days. All the patients continued to have hay fever during the course of study and any fluctuation in the symptoms that occurred was accounted for by a concomitant fluctuation in the pollen concentration of the atmosphere.

Before the onset of hay fever symptoms and, therefore, before the onset of histaminase therapy, each patient was tested intradermally with 0.001 mg., 0.0001 mg. and 0.00001 mg. of histamine acid phosphate. By this titration of the histamine tests, it was hoped to determine the smallest amount of histamine to which each patient would react. Any subsequent alteration in the cutaneous reaction that might occur as a result of histaminase therapy could then be accurately ascertained. The size of the reaction, i. e. the wheal and the erythema, was measured ten minutes after the test was made, and it was found that the greatest reactions occurred at the site of the largest doses. All the patients reacted to 0.001 mg. and 0.0001 mg., whereas only seven of the patients reacted to 0.00001 mg. of histamine acid phosphate. On the day histaminase therapy was terminated the histamine tests were repeated, and the results were compared with those previously noted. No appreciable change in the histamine reaction was observed in any of the fifteen patients.

SUMMARY

Histaminase was administered orally to fifteen patients with typical ragweed hay fever during the height of the 1939 ragweed season. Daily pollen counts were made and a daily symptom record was kept for each patient. Titrated intradermal tests with histamine acid phosphate were made before and after histaminase therapy.

Histaminase failed to give relief to any of the patients with ragweed hay fever. Any fluctuation in symptomatology that occurred could be accounted for by a concomitant fluctuation in the pollen concentration of the atmosphere.

Histaminase therapy did not alter the histamine reaction of any of the fifteen patients.

1114 St. Paul Street.

Clinical Notes, Suggestions and New Instruments

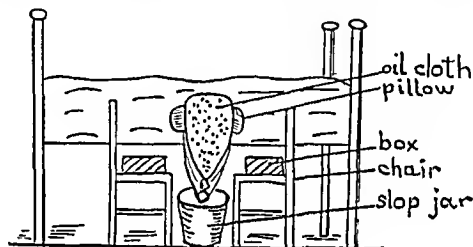
THE HOT DOUCHE

C. A. ANDERSON, M.D., BURLINGTON, N. C.

For some time I have used a method of applying heat in the treatment of such conditions as chronic pelvic infections and salpingitis which has proved most satisfactory. Probably some one can get a suggestion from the description of my method and render the hot douche more popular.

For a disease which requires months of daily treatments, office instruments for applying dry heat in the vagina are barely practicable for the wealthy and not practicable for the nullipara, and the cost renders these treatments prohibitive for the poor. Furthermore, the hot douche, although inexpensive, is probably a better method of conveying heat to the pelvic organs.

Maintaining the necessary uniform high temperature of the douche for from thirty to forty-five minutes I found impracticable, almost impossible, until I thought of controlling the flow with a Hoffman clamp. Now I use boiling water in the fountain syringe bag and close the clamp until the water cools in the tube and escapes from the vaginal tip at the desired temperature. If the douche is too hot, a slight turn of the clamp corrects it; if it is too cool, a slight release of the clamp raises



Materials for hot douche.

the temperature. I depend on the patient's feeling as to what temperature she can stand. Within a short time she begins stepping up the temperature. My patients tell me that one bag, or half a gallon, of boiling water lasts for from forty to fifty minutes.

Some of my failures have impressed on me the necessity of giving fully written instructions. I now read my patient type-written instructions, explain them to her and let her take a copy similar to the ones here given. The simple little clamp solved a difficult problem.

WRITTEN INSTRUCTIONS FOR THE HOT DOUCHE

The prolonged hot douche is one of the more useful local treatments in diseases of women.

In certain cases it is very beneficial when properly taken.

When not properly taken it may do serious damage.

FOLLOW DIRECTIONS CLOSELY

Water

Add

For the first few days, while learning to control the flow, use water as warm as you can bear without scalding.

After you learn to control the flow, the temperature of the water in the bag may be gradually stepped up to boiling and allowed to cool in the tube to the desired temperature while it slowly trickles into the vagina.

Close the clamp until the water runs slowly and bend tubing when you wish to stop the flow.

Should the water in the tubing cool too much, a slight release of the clamp will raise the douche temperature.

Don't use water too hot until you learn to control the flow to a slow trickle.

It is heat and not the quantity of water that is desired.

The douche must last for from thirty to forty-five minutes.

If the douche is uncomfortable or painful, stop using it until you see your doctor.

DANGER!—Use vaginal tube with holes in the side. The tube with a hole in the end (rectal tube) may cause serious trouble.

CECOSTOMY—SWENSON

Jour. A. M. A.
JUNE 22, 1940

The bag should not be more than 2 to 3 feet above your body.

There are different modes of taking a douche. Use the mode you like.

1. Lie in the bath tub if the bathroom is not too cold in the winter or too hot and stuffy in the summer.
2. Lie in bed with douche pan—if you can do it without spilling water on the bed.
3. Place slop jar beside bed, a chair on each side of it and a box on each chair if necessary to raise to bed level, a hard pillow 6 inches from edge of bed, a piece of oilcloth (not rubber) over pillow and down into slop jar, the lower end having been rolled and fastened with a safety pin, forming a conical spout. The douche bag filled, the patient pulls up gown, sits down, falls back with the pillow under the small of her back, places her feet on the boxes and if the room is cold wraps her limbs. The water drops into the oilcloth cone. Warm water should be used in the bag, until one gets the knack of controlling the flow by using the clamp and bending the tubing.

DOUCHE

Water.
Prescription:

Heat. If douche temperature falls, a slight release of clamp will raise the temperature.
Bag not more than 2 to 3 feet above your body.
Use vaginal tip.
Time, thirty to forty-five minutes.
The daily paper or a magazine helps to pass the time.

A NEW INSTRUMENT FOR SAFELY DECOMPRESSING THE CECUM DURING CECOSTOMY

ORVAR SWENSON, M.D., BOSTON

This new intestinal aspirator is designed to avoid the usual difficulties encountered when decompressing the obstructed colon prior to performing a cecostomy. If partial deflation can be done readily and safely, it often permits easy manipulation of the cecum and facilitates subsequent operative technic. If such drainage is attempted with a trocar, the instrument may

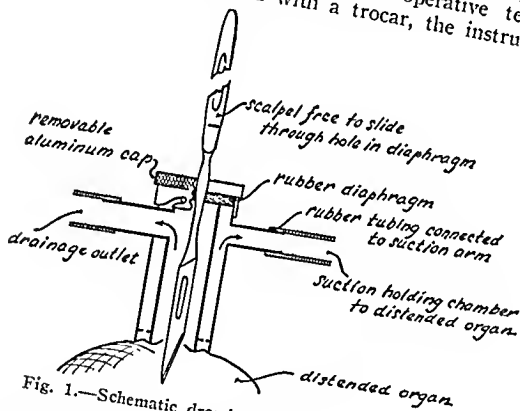


Fig. 1.—Schematic drawing of the new instrument.

become occluded before sufficient decompression is accomplished. When this occurs, removal of the trocar is necessary, with subsequent welling out of intestinal contents. Furthermore, insertion of a large trocar through a tense, thinned out intestinal wall may cause the bowel wall to split, permitting fecal material to ooze around the trocar.

The instrument consists of a large double wall tube so arranged that, when negative pressure is applied, the space between the two walls acts as a suction cup and virtually seals the instrument to the viscus. The suction cup, as well as the large inner tube through which drainage takes place, is shown in the schematic drawing (fig. 1). Two suction lines are attached to the instrument: one is connected to the suction chamber which holds the instrument in place and the other to the inner aspirating tube through which evacuation takes place. A removable metal cap (shown in figure 2), equipped with a rubber diaphragm, facilitates cleaning. The rubber diaphragm illustrated in figure 3 enables retraction of the Bard-Parker

From the Surgical Clinic of the Peter Bent Brigham Hospital.
Suggestions and help were given by Drs. F. C. Newton and Carl Walter and Mr. K. B. Smith aided in the mechanical construction of the instrument.

knife (No. 7) within the aspirating chamber during the application of the instrument, as well as its manipulation in opening the intestine. This illustration also shows the perforated metal disk within the suction chamber, which prevents excessive invagination of the intestinal wall. This stabilizes the instrument during deflation and minimizes trauma to the bowel wall.

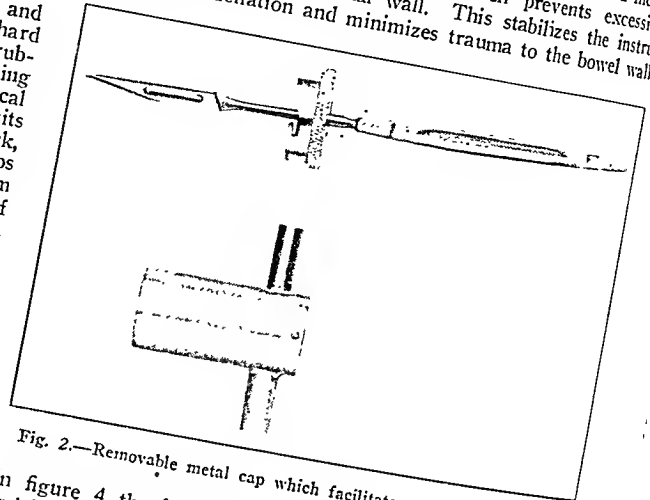


Fig. 2.—Removable metal cap which facilitates cleaning the instrument and knife in place.

In figure 4 the instrument is assembled with the metal cap for drainage; suction is applied first to the suction chamber until the blade perforates the intestinal wall. The intestinal contents are evacuated through the central tube and passed out one side arm, negative pressure being applied if necessary. When the instrument is in place, considerable traction can be applied without dislodging it. Hence it can be used to draw the intestine out of the incision and obviates the use of traumatizing clamps.

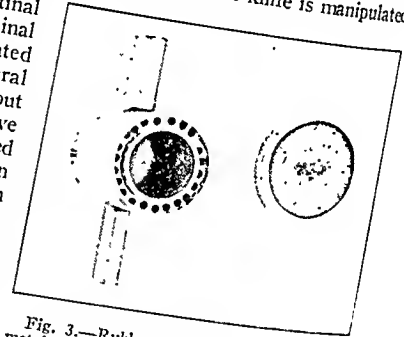


Fig. 3.—Rubber diaphragm and perforated metal disk within the suction chamber.

After adequate decompression and the delivery of the cecum through the incision, purse-string sutures are placed round the instrument before the latter is removed by relieving the suction. The surgical procedure of choice can be performed from this point on. A negative pressure of from 10 to 15 inches of water is adequate for the efficient operation of the instrument.

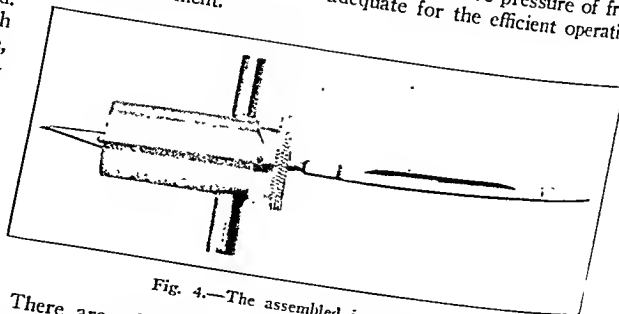


Fig. 4.—The assembled instrument.

There are other conditions necessitating drainage in which this evacuator can be used to advantage. Benign, inalignant and parasitic cysts can be drained with this closed system. Markedly distended gallbladders can be drained. The proximal loop of distended intestine in intestinal atresia of the newborn can be decompressed in the manner described for intestinal obstruction.

721 Huntington Avcnuc.

PEDUNCULATED FIBROLIPOMA OF THE VULVA

GEORGE DE TARNOWSKY, M.D., CHICAGO

While fibromas or fibrolipomas of the vulva are only comparatively rare and their removal presents a rather simple problem in plastic surgery, the following case seems worthy of report:

REPORT OF CASE

History.—Miss R. A. aged 21 was referred to me by Dr. A. J. Schwartz, Nov. 16, 1939, for the removal of a pedunculated tumor arising from the right labium majus. Some two years before the patient—unusually shy and modest—had begun to notice that she was—to quote her own words—"getting fat between her thighs." She gave up swimming on this account but otherwise continued her social and athletic activities, including dancing. The tumor continued to grow and elongate until it reached half-way down her thigh. Some two months prior to her hospital admission the lower margin of the tumor began to ulcerate. This so alarmed the patient that, for the first time, she confided in her mother and allowed the latter to examine her external genitalia.

On examination a pedunculated tumor, 32 cm. long, with an ulcerated apex, was disclosed. The mucosa of the right labium majus was dragged down a distance of 10 cm. The upper half of the pedicle was lymphedematous while the lower portion gave one a doughy feeling suggesting a lipoma rather than a soft fibroma. Three ulcerated areas bled easily on palpation. No other anomalies were noted; routine laboratory reports were all negative.

Under cyclopropane anesthesia the right labium majus was restored to its normal size and shape. The mucosa was dissected free from the tumor and a sufficient flap of skin left for plastic repair prior to removal of the entire pedicle.

Pathologic Report.—The tumor was large, soft and pedunculated and weighed 1,270 Gm. It measured 21 by 17 by 7 cm. Over its apex were three ulcerated areas from 1 to 3 cm. in diameter. Microscopically the central portion of the tumor was made up of both fibrous and fatty tissues. Lymphedema was present throughout the proximal half of the mass. Some areas were very cellular but no definite evidence of sarcoma was noted.

During the past month two similar but sessile vulvar fibromas have come to our service. A woman aged 60 who was sent to the hospital for removal of a carcinoma of the fundus uteri had a tumor of the left labium majus the size of a large grapefruit which, she stated, was congenital. Her married daughter had a similar growth on her right labium majus.

30 North Michigan Avenue.

Case presented before the Chicago Gynecological Society, Jan. 19, 1940.



Fig. 1.—Pedunculated fibrolipoma of the vulva.



Fig. 2.—Appearance immediately after removal of tumor.

Special Article

CONFERENCES ON THERAPY

THE TREATMENT OF BLOOD DISORDERS

IV. ROENTGEN THERAPY

NOTE.—These are actual reports, slightly edited, of conferences by the members of the Departments of Pharmacology and of Medicine of Cornell University Medical College and the New York Hospital, with the collaboration of other departments. The questions and discussions involve participation by members of the staff of the college and hospital, students and visitors.

DR. PAUL REZNIKOFF: Dr. Forkner starts the discussion this morning on the use of roentgen therapy in disorders of the blood and blood-forming organs.

DR. CLAUDE E. FORKNER: There are only a few diseases of the blood in which x-rays are used for treatment. Among these are leukemia, the lymphoblastoma group of diseases including Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma, small round cell sarcoma, and polycythemia. The thrombocytopenic purpuras and granulocytopenia will be discussed briefly, but I feel that roentgen treatment as a rule is not indicated for either of these.

A variety of x-ray technics has been applied in the treatment of leukemia. Nicholas Senn, when he first found that x-rays were effective in leukemia in 1903, thought that he had cured the disease. He used a crude apparatus. Since that time many voltages have been used, varying from a very few kilovolts to over 1,000 kilovolts. Filters of a dozen different sorts and thicknesses have been used. Skin focus distances ranging from a few centimeters to several meters have been employed, and sizes of fields of irradiation from a few square centimeters to that of the total body surface. Varying milliamperages have been used. With all these, good results have been obtained, but I think perhaps not very much better results than was the case in the original method of Senn with a crude apparatus. In leukemia it is paradoxical that the disease is most effectively treated by agents which are known experimentally to induce the disease. The agents are arsenic, x-rays, radium and benzene (benzol). All may be effective in bringing about a more easily transmissible leukemia. In animals they may actually induce a higher incidence of leukemia than occurs in control groups. There is a good deal of evidence that even in man irradiation in some cases is a factor in inducing leukemia. That may be the reason why leukemia cannot be cured with any of these agents—because the agents used to cure the disease also tend to make the patient more susceptible.

What are the indications for the use of x-rays or radium for patients with leukemia or with one of the lymphoblastoma group of diseases? First one must view the whole patient. A high leukocyte count, the presence of an enlarged spleen, enlarged lymph nodes or any other single factor should not be considered alone in the decision as to whether or not the patient needs treatment. The occurrence of symptoms is especially important as pointing to the need for treatment. There often are general symptoms such as fatigue, low grade fever and loss of weight. Symptoms are sometimes brought about by the enlarged organs, such as enlarged lymph nodes, perhaps in the mediastinum, or a large spleen producing pain, a dragging sensation or per-

happens gastrointestinal disturbances. Symptoms may be brought about by the increased metabolic rate, such as excessive perspiration, rapid loss of weight and fatigue. There may be symptoms due to progressive anemia, which may at times be severe, or a rapidly increasing white blood cell count with increasing numbers of immature cells. All of these may point toward the probability that the patient may need specific treatment with x-rays, radium or some other agent, whichever you choose. At times itching, particularly in the lymphogenous group of leukemias, even though the patient may be well in other respects, may indicate treatment. Patients can go along with a leukocyte count of 100,000 or 200,000 per cubic millimeter for long periods of time and still feel quite well. We use treatment in leukemia as a palliative measure, knowing well that no cure can be accomplished. Since x-rays are a palliative measure they should not be employed when the patient is without symptoms. However, at times one can anticipate that a patient will have symptoms in the near future, and then one may forestall an imminent relapse.

It is important also to know the indications for stopping treatment in disorders such as leukemia and lymphoblastoma. It happens too frequently that patients are overtreated with x-rays and radium. Perhaps the best treatment is that which will bring about satisfactory recession of symptoms and nothing more than that; in other words, the least treatment which is effective in relieving the symptoms is the proper treatment in leukemia; this applies also in the lymphoblastoma group of diseases. Some patients are extraordinarily sensitive to x-rays or radium; others are more resistant, so that one should at first treat the patient cautiously and observe the reaction. Some patients exhibit a delayed effect and several weeks may pass before the maximum effect occurs. If one does not allow for this, one may obviously overtreat the patient. It is important to observe the symptoms during the initial series of treatments. These may serve as a guide to how that patient is going to react subsequently. Patients should have frequent physical examinations and examination of the blood before each roentgen treatment or before each small series of treatments in order to make sure that the blood or the patient himself has not been affected adversely by too much treatment. As soon as the leukocyte count begins to show an abrupt fall in leukemia, it is time to spread the treatments a little further apart. You cannot say at the beginning that you are going to give a patient 400, 600 or 1,000 roentgens. You must judge that as you go along and spread your treatment as the count begins to drop abruptly. When the count reaches 30,000 or 20,000 or thereabouts, you must consider the possibility of discontinuing treatment altogether for a time. If you do not do this, dangerous leukopenia may supervene. Thrombocytopenia may develop, with striking hemorrhagic manifestations, or anemia may increase. The indications then for resuming treatment after it has been stopped are similar to those at the beginning, except that the patient must be observed at frequent intervals, perhaps of not more than six or eight weeks, in order to detect changes which might indicate an impending relapse, which may be forestalled. These indications are a rapid increase in white blood cells, a persistent increase or high level of the basal metabolic rate, the presence in the blood of increasing numbers of very immature cells, and the symptoms associated with enlargement of the organs.

What are the contraindications for the treatment of leukemia? Some say that acute leukemia should not be treated with x-rays. There is no other treatment which is effective except perhaps transfusions, which are only palliative, the effect lasting for a few days. I think that it is justifiable to treat acute leukemia with x-rays, but one must expect little from such treatment. Occasionally if so treated the disease will be converted into subacute or chronic forms. If there are large numbers of blast cells in the blood, as in a terminal stage of chronic leukemia or in acute leukemia, many feel that treatment should not be given. I believe that this is no contraindication for treatment but that one can expect relatively little from it. Some patients will respond favorably. Leukopenia is often regarded as a contraindication for the treatment of leukemia. I do not consider it so unless the leukopenia has been brought about as a result of treatment with arsenic, benzene (benzol), x-rays or radium. Spontaneous leukopenia in leukemia is not a contraindication for treatment, and in some cases the treatment will cause the leukocyte count to rise rather than fall. Thrombocytopenia and severe anemia are also not contraindications for the treatment of leukemia unless they are brought about as a result of treatment. If they are brought about merely as a result of the disease, they frequently will respond satisfactorily to treatment. However, one must gage the treatment cautiously in such instances. Fever also is a frequent accompaniment of leukemia and is not a valid contraindication for treatment, particularly a low grade fever. It will frequently disappear after treatment. Pregnancy, I think, although it rarely occurs in leukemia, is a pretty strong indication against treatment with x-rays or radium because of the untoward effects on the fetus.

The benefits of treatment may also be observed in the effects on the enlarged lymph nodes and in statistics relating to the duration of life. In a case of leukemia with enlarged mediastinal glands, marked reduction in their size may occur within a few days after treatment. The question Does treatment prolong the life of a patient with leukemia or lymphoblastoma? frequently comes up for discussion. Dr. Minot's study tended to show that it does not. Certainly in isolated instances it does, but not in the great majority of cases, although the patient is made comfortable and is enabled to have a much more satisfactory life. The observations of others are essentially the same as those of Minot.

In polycythemia vera it is important to give patients more roentgen treatment than is usually required in leukemia. The point of application of the x-rays is often different, in that patients with polycythemia vera may be treated over the bones more effectively than patients with leukemia; also spray irradiation is perhaps more effective and less dangerous in polycythemia than it is in leukemia. Polycythemic patients are treated only if they have symptoms, the purpose being to lower the production of red blood cells and hemoglobin by the effect of x-rays on the bone marrow cells.

METHODS OF TREATMENT

DR. REZNIKOFF: The second phase, the x-ray aspects, will be taken up by Dr. Carty.

DR. JOHN R. CARTY: X-rays and radium are used simply for palliation. Owing to the fact that it will be necessary to use x-rays over a period of time, particular care should be taken to avoid injury to the skin. Too vigorous treatment should not be attempted.

particularly in single doses. With use of multiple small doses one can watch the patient more carefully, and one is not likely to produce leukopenia.

I agree with Dr. Forkner that the question of leukocyte count alone should not be taken as a guide to roentgen therapy, as there are patients with a leukocyte count of 70,000 or even 100,000 cells who are quite comfortable, and if the cells are reduced below that by x-rays they feel worse. Similarly, a patient with 60,000 or 70,000 cells might be very uncomfortable and made to feel better by treatment.

In general, two methods of treatment are employed. With the first, treatment is applied to a limited area directly over the bone and spleen in myelogenous leukemia, and over the enlarged lymph nodes in lymphatic leukemia. With the second method the entire body is treated by means of very small doses by the spray method as mentioned by Dr. Forkner. While the dose per se is small the body area is large, and the absorption of x-rays may be considerable. I believe that the latter method is particularly useful when the patient is unusually radiosensitive, but I am not as enthusiastic as are some people about that method because I feel it is hard on the marrow. I believe that 200 kilovolt peak therapy with filtration of from 1 to 2 mm. of copper is preferable to medium wave or intermediate therapy with less filtration simply because the skin seems to endure this type of radiation better, and the more the skin can be conserved, the better.

One must exercise great care in treating children with leukemia as I have occasionally seen violent reactions following small doses.

After the first series of treatments the radiation needs of the leukemic patient can generally be determined. It is important to determine this not only as a guide for future doses but also for its prognostic significance.

With lymphoblastoma, Hodgkin's disease and lymphosarcoma, while the outlook is desperate, occasional instances of authentic cure are reported, and I believe that the results obtained by x-rays have improved considerably with the improvement of technic.

A constant check on the condition of the mediastinum is important because enlargement may occur there without any symptoms whatever. Another important point is that the treatment of the mediastinum, when there are pressure symptoms, must be given cautiously with the patient hospitalized during the first two or three treatments; otherwise difficulty may be encountered because if the patient is radiosensitive the lymph nodes will swell before decreasing in size.

Patients who are moribund or who have extreme leukopenia or anemia are usually best not treated. If, however, this occurs early in the disease I believe that very cautious treatments may be given, for a rise of the leukocytes may occasionally occur, as Dr. Forkner has stated.

In polycythemia vera we again use x-rays as a palliative, not a curative, agent. Local or general body exposure (spray) may be given. The long and flat bones, including the sternum, are treated. Careful check on the blood should be maintained. It is well to discontinue treatment if the white cell count goes below 5,000.

EFFECT OF IRRADIATION

DR. REZNIKOFF: The pathology will be presented by Dr. Furth.

DR. JACOB FURTH: The therapeutic application of x-rays in leukemia and allied diseases followed empiri-

cal observations of Pusey (1902) and Senn (1903) on patients and the experimental studies of Heinecke (1904) on animals that indicated the high susceptibility of blood cells to x-rays. Nuclear degeneration in lymphocytes is evident within a few hours after irradiation, increasing in severity during successive days. A transient initial rise in white blood cells is followed by leukopenia reaching its depth several days after irradiation, the severity of the leukopenia depending on the dose. The effect of a given dose is the same regardless of intensity, the product of intensity and time being constant, as expressed by the Bunsen-Roscoe law. This does not hold when feeble intensities are used. Different types of radiation act the same way, the quantity of radiating energy absorbed being the main factor that determines the effect of the radiation. Among blood cells the lymphocytes are the most susceptible to x-rays but myelogenic and erythrocytic cells are likewise readily destroyed, so that severe general irradiation is followed by aplasia of bone marrow and atrophy of lymph nodes and spleen. Monocytes seem to be the most resistant type of leukocytes.

The degree of sensitivity to x-rays is characteristic for each cell type. In general, the radiosensitivity of cells seems to be directly related to their reproductive capacity and inversely related to the degree of differentiation, as stated by Bergonie and Tribondeau (1906). X-ray susceptibility of the same cell type varies with stages of cell development, the peak of susceptibility being during mitosis. The difference may be as much as eightfold (Mottram). Leukemic cells are as a rule more susceptible to x-rays than normal cells but the difference is quantitative and overlapping. For instance, 10 per cent of cells of one type may be killed by a dose of x-rays which may be only one tenth of that needed to kill the more resistant 10 per cent of the same population (Scott). This is in complete agreement with our experimental studies on leukemic blood cells. When general irradiation is given, there seems to be no dose that will kill all malignant cells without producing injury fatal to the host. The radiosensitivity of different malignant cells of the same type varies and cannot be predicted with certainty. I shall modify slightly Dr. Forkner's remarks by saying that there is a variation in susceptibility of different malignant strains of the same cell type (e. g. leukemic lymphocytes), but animal experiments indicate that the sensitivity of the same strain of malignant cells is constant in different hosts.

X-ray death is not immediate. Though fatally wounded, the cells may migrate and exhibit other evidence of life for hours or days following irradiation, a phenomenon referred to as delayed lethal effect. The incubation period of this delayed lethal effect depends on the dose. Ignoring this factor in roentgen therapy might result in overdosage.

X-rays lower resistance of the host to infections. Irradiated animals may succumb to infection by otherwise harmless micro-organisms of which they are carriers. Prophylaxis of latent infections should therefore precede therapeutic irradiation.

X-rays injure cells by direct effect; hence the beam of radiation is best directed to masses of neoplastic cells. The usual sarcoma and carcinoma as a rule are not definitely influenced by indirect irradiation, but there may be an indirect effect in leukemia, though this, if present, is slight and variable. This indirect effect has not been well analyzed, and almost every affirmative observation can be matched with a contradictory report.

Nevertheless the numerous theories proposed to explain the assumed indirect effect, such as those postulating necrohormones, toxins or enzymes liberated from the tissues, or circulating electrons, are widely quoted. A general effect may follow irradiation, but I do not know of any experimental work indicating the production of a specific x-ray change by indirect irradiation, for example, atrophy of bone marrow or of spleen. The whole question of indirect irradiation effect requires reconsideration. The indirect local effect is better known. Injury to the soil of the neoplastic cells, for instance obliteration of vessels, doubtless retards neoplastic growth.

It is frequently stated that small doses of x-rays have a stimulating effect. This, if present, is slight and transient. Prolonged leukocytosis, lymphocytosis or erythremia has never been produced by x-rays. The x-rays are useful to destroy an excess of white cells in leukemia and erythrogenic foci in polycythemia but useless to stimulate hypofunctioning blood-forming organs. Neoplasia by irradiation occurring after a latent period of from ten to thirty years is a different process. The opinion that leukemic cells are stimulated to maturation by x-rays is not supported by experimental studies.

The subject of radiobiology is as fascinating as it is important in medicine. Its many aspects are admirably reviewed in the "Handbuch der gesamten Strahlenheilkunde," edited by Lazarus. A similar encyclopedia of basic knowledge is the three volume set of Duggar on the biologic effect of radiation. The two small volumes of Colwell and Russ "Radium, X-Rays and the Living Cell" and "X-Ray and Radium Injuries" are good reading and reference books. A good review of the pertinent medical literature can be found in Forkner's book "Leukemia and Allied Disorders" and in Selling and Osgood's section in Downey's "Handbook of Hematology." Among the recent individual contributions on the biologic effect of x-rays and radium, Scott's monograph in the British Medical Research Council Series (1937) is outstanding.

DISCUSSION OF QUESTIONS

STUDENT: Is it always necessary to hospitalize a patient when giving roentgen therapy for leukemia?

DR. FORKNER: No, but I think it is advisable for the initial series of treatments because one is dealing with a number of unknown factors. Once a series of treatments has been given, one knows the patient much better.

STUDENT: How often does one check the blood of such an ambulatory patient?

DR. FORKNER: About every six weeks or twelve weeks if the patient is doing well. More frequent visits are necessary if he is not doing well. A great deal depends on how ill the patient is and in what stage the disease is.

DR. REZNIKOFF: Our custom here is to check the blood within a week after the cessation of the series of treatments. Then if the patient is normal we have him come back within at least a month.

STUDENT: According to the literature there are so-called cures with roentgen therapy, pretty definite cures. Dose that occur only in early cases?

DR. CARTY: There have been a few reported cures by x-rays where there has been definite histologic evidence of lymphoblastoma. Those are early cases.

DR. FORKNER: I know of only two cases of leukemia in the literature in which a cure has followed treatment with x-rays, and those were both early cases of chloroma. I think that none of the other cases that have been reported, of which there are a fair number, will stand critical judgment. It should be pointed out that the diagnosis of leukemia is sometimes extraordinarily difficult and that it may easily be confused with a number of other disorders.

DR. McKEEN CATTELL: Then one cannot say with absolute certainty that the recoveries have been due to the x-rays?

DR. FORKNER: One of those mentioned was associated with excision of a chloromatous tumor in which the blood had only a few myelocytes. The other patient had some myeloblasts in the blood and there were a number of tumors scattered about. A biopsy was taken for confirmation of diagnosis. The patients, both children, were alive and well two and one-half years later, which I think is adequate time for one to say that cure had resulted. I have never seen an untreated chloroma last that long.

STUDENT: I should like to ask Dr. Carty if anything is known definitely about the mechanism of the x-ray reactions which are observed after therapy. I refer to nausea and vomiting and sometimes vague abdominal pains.

DR. CARTY: There are many theories. We really do not know much about it. The theories are, first, that the effect is psychic; second, that there is a change in the composition of the blood; third, that there is some noxious gas like nitrous oxide generated by the machine; and fourth, that there is some breakdown product which poisons the patient.

I have seen patients who have had radiation become nauseated entirely on the basis of psychic reaction. One patient was taken to the treatment room early in the morning, and the machine had not been running. I put that patient under the machine and had it make a noise without giving off any x-rays, and the patient promptly vomited after the lapse of the usual time. Undoubtedly some reactions are based on complex physiologic-chemical effects, and not much is known about them. Many remedies are employed for these reactions, and that fact alone is an indication that no one therapeutic measure is worth much.

STUDENT: Has there been any experience in this hospital with the use of vitamin B complex in the treatment of nausea and vomiting following irradiation?

DR. CARTY: We have tried it, but not with startling results. Liver extract did seem to do some good in certain cases. A high vitamin intake, including orange juice and grapefruit juice, is sometimes helpful, and also to treat the patient on an empty stomach, but I know of no therapeutic measure that is universally effective.

DR. FORKNER: These patients have fewer untoward effects following treatment if they are on a low protein and a high carbohydrate diet because there is much protein destruction and elimination of its metabolites as a result of the x-rays. Therefore, if possible, for a few days prior to treatment and for a week or so afterward a low protein, high carbohydrate diet may be given, sometimes with benefit.

DR. REZNIKOFF: Dr. Forkner, will you tell us something about roentgen therapy in thrombocytopenic purpura and granulocytopenia?

DR. FORKNER: There have been several series of studies on thrombocytopenic purpura and granulocytopenia, so called, in which it has been thought that small stimulating doses of x-rays applied to the bones have been effective in inducing remissions, but other series of cases have not verified this. It seems to me unlikely that irradiation would be effective in that condition or in agranulocytic angina. Concerning patients who have thrombocytopenic purpura haemorrhagica it has been said that irradiation of the spleen will accomplish in a measure what splenectomy might accomplish and can be applied to patients whose spleens it is for one reason or another impossible to take out. I think this method is definitely secondary to splenectomy and should not be used if splenectomy can be done fairly safely. When it cannot, I think it is justifiable to try to induce a remission by intensive treatment.

DR. REZNIKOFF: I would go even further and say that in the case of granulocytopenia it is a dangerous procedure. It is my impression that, while these cases show a temporary effect as demonstrated by a response of the white blood cells, they subsequently show a marked depression, below levels seen before the treatment was started.

DR. HARRY GOLD: Would we be safe in assuming that the therapeutic effects of x-rays in these various blood diseases that have been mentioned result from the destruction of cells and that there is no other effect of x-rays on any underlying process responsible for the disease?

DR. FURTH: The direct destructive effect of x-rays is something definite. It can be demonstrated by both *in vivo* and *in vitro* experiments. In experimental leukemia, destruction of leukemic cells explains the prolongation of life. The indirect effect is not well understood but it seems to be present. There is some regression of the size of the lymph nodes, and the leukocyte count is reduced beyond what one would expect from irradiating the blood leukocytes circulating within the therapeutic field during the time of irradiation. The number of blood cells destroyed by direct irradiation is enormous but the indirect effect is very uncertain; I believe that it is slight and its mechanism not understood.

DR. REZNIKOFF: In the cases of polycythemia, spray irradiation, which would be indirect irradiation to some extent, has given us the most prolonged remissions. We have patients who have had spray radiations of from 25 to 50 roentgens with a maximum of six treatments who have gone for as long as a year, and most more than forty weeks, without change in the blood count, whereas previously with acetylphenylhydrazine or spot radiation over the bone marrow and spleen we have rarely been able to keep them more than a few months at the most. Dr. Carty, you were not enthusiastic about spray radiation. Did you mean to include polycythemia?

DR. CARTY: No, I referred particularly to leukemia.

DR. REZNIKOFF: Have you anything to say about grenz radiation, the so-called Buckie radiation which penetrates only 3 mm.?

DR. CARTY: I have had no experience with it myself, but Buckie claims that a reduction in red cells is produced. If so, that would tend, it seems to me, to be in favor of some indirect mechanism.

In this connection I should like to ask Dr. Furth if he is familiar with some work that is being done on

irradiated blood in hopeless cancer cases in which the blood is removed from the patient, irradiated and then returned to the body.

DR. FURTH: I am not certain that a specific effect has been demonstrated by means of injections of irradiated blood. Dr. Forkner might be more familiar with the literature. I am impressed by the lack of controls in these experiments.

DR. FORKNER: I think the results in most of the cases that have been recorded are equivocal. Most of the cases studied have been complicated by other factors which might well account for the remission. The original work, I think, was done by Capps and Smith in 1907 and then was repeated by Szilard and more recently by a number of other workers. There is still disagreement, but I think the general feeling is that it does not work, and any effect described has been very transitory.

One has to be cautious about treating the bone marrow or the bones of patients with leukemia. That does not apply in polycythemia, but in leukemia when treating the bones one is much more likely to induce a more severe anemia. Instead of the red blood cells promptly coming up as the white blood cells come down, the red blood cells are apt to drop further, and the effect is less beneficial; also the thrombocytes are sensitive to radiation, particularly direct radiation. I think one is more apt to produce thrombocytopenia in treating the bones than in treating the spleen or the chest.

DR. CATTELL: Under what circumstances is radium the treatment of choice for blood conditions?

DR. CARTY: I think it is simply a matter of convenience. Of course, the radiation is quite different in wavelength; the gamma radiation of radium is different from radiation of 200 kilovolt peak. Practically speaking, the effects can be considered the same.

DR. FURTH: In the treatment of localized masses of neoplastic blood cells, as in the treatment of cancer, radium is excellent and might in some instances be preferred, but in treating a diffuse systemic disease like leukemia x-rays seem preferable.

DR. FORKNER: Yet one can apply radium to the spleen in leukemia and get a satisfactory effect, a general effect, on the bone marrow.

STUDENT: Considering the fact that there may be an indirect factor, such as mentioned by Dr. Furth, is there any reason why the blood of a polycythemic patient who has been given roentgen treatment should not be used for transfusion?

DR. REZNIKOFF: I see no reason why the blood from a polycythemic patient should not be used for transfusions. We have used it and have never regretted its use, but I don't quite understand why the polycythemic patient need be irradiated first.

STUDENT: I meant, was there anything wrong in using the blood of such a person?

DR. REZNIKOFF: I think the effect of the x-rays would disappear in a relatively short time. The amount of x-rays the recipient would have would be negligible.

DR. CARTY: We have used the term "stimulating dose." I think it is misleading. X-rays probably do not produce an effect comparable to the stimulation of a gland, speaking from the physiologic standpoint. The so-called stimulating effect is probably in the nature of a minimal injury.

DR. FORKNER: I think that the term came from the original work of Murphy, Nakahara and Strum, in which they found that small doses of x-rays applied to animals induced an increased production of lymphocytes in the germinal centers of lymph nodes and an increase in the number of lymphocytes in the blood, but I think their results were also interpreted as being secondary to a minimal destruction or a minimal damage to the cells.

STUDENT: I want to ask about the use of radioactivated elements in the treatment of leukemia, with the radioactivity lasting three or four days. Has that been used at all?

DR. FORKNER: Lawrence and his associates in California have treated patients with various disorders, particularly leukemia, with irradiated phosphorus. They have found that by irradiating phosphorus and then giving patients this to drink they can induce a satisfactory remission, which is fairly prolonged in its effect. When the effects wear off all the patient has to do is to take another drink and he again gets a satisfactory effect. The treatment has not been carried over a long enough time to know just how permanently useful it is going to be. I think the results are promising. It may turn out to be the most effective form of treatment of leukemia by irradiation.

DR. REZNIKOFF: Dr. Harrison Martland has given rats radioactive liquids and has shown how dangerous, or rather how effective, the radioactive material can be in causing depression of the bone marrow. One of the difficulties, as he points out, is that when a remedy is applied locally the dosage can be controlled and stopped, whereas if an excess is taken and is stored there is no means of getting rid of it.

DR. FORKNER: I think that applies to radium and to the thorium group of preparations, but this irradiated phosphorus has a half life of only fourteen days.

DR. CARTY: That brings up the opaque material colloidal thorium dioxide. I have discussed the use of that substance with Dr. Martland; he is strongly against it and feels that later on there may be some bad end results from its use.

DR. GOLD: There is a great deal of exploitation of radioactive waters and radioactive baths.

DR. FORKNER: There is danger in their use. A preparation called Radiothor a few years ago was sold widely for the treatment of arthritis and various other disorders. I had that substance appraised at the Rockefeller Institute, and it was found to be definitely radioactive and we considered the recommended doses dangerous.

SUMMARY

DR. REZNIKOFF: Dr. Gold, will you summarize?

DR. GOLD: In today's conference we have considered x-ray radiation in the therapy of blood diseases, its indications, the method of application, some of the mechanisms involved in its action, the dosage and the dangers.

The effects of radium and x-rays are similar and the choice of one over the other seems, from the discussion, to be chiefly a matter of convenience.

Some of the fundamental facts concerning the response of blood cells to radiation help one to understand better the problems and difficulties involved in its use. Blood cells are very susceptible to radiation, some more than others. The most sensitive cells are the lymphocytes, and the most resistant the monocytes. Leukemic

cells are more susceptible than normal ones. There are marked differences in sensitiveness among cells of the same type depending on various factors, as the stage of their development, and this applies to both normal and leukemic cells. There is so much overlapping in the sensitiveness that it is impossible to find the dose of radiation which will destroy all the abnormal cells without causing serious destruction of normal ones as well.

The long latent period after the application of radiation before effects appear is a source of danger and must be taken into account to avoid overdosage.

The effect of radiation appears to be chiefly that of cellular injury, and the so-called stimulating effect of small doses may be merely a matter of minimal injury. So-called stimulating effects of small doses are slight and transient and of doubtful value in hypofunctional states of blood-forming organs such as thrombocytopenic purpura and granulocytopenia.

Although there is some indication that radiation may produce some indirect effects, the main effects appear to be exerted by direct destructive action on the abnormal cells, suggesting the desirability of applying radiation directly to the pathologic tissues.

Various technics for the application of radiation therapy were discussed. The effective dose is the amount of energy absorbed by the tissues, and it depends on the product of the intensity of the irradiation and its duration. Since patients differ in their sensitiveness, dosage, as in the case of a drug, needs to be established for each case individually.

Some of the dangers of irradiation were discussed, particularly the effect of overdosage in depressing unduly the various elements of the bone marrow. Minor reactions such as nausea and vomiting, and methods for their control, which were also considered, appear sometimes to be due to psychic factors.

In leukemia, the indications for treatment are such symptoms as fatigue, fever, loss of weight, pain due to pressure, and itching. The treatment reduces the size of enlarged glands. Occasionally it prolongs life and, in many, symptoms are relieved. At times roentgen treatment may delay the appearance of symptoms or prevent relapse. In leukemia the radiation is more safely applied to the spleen or the chest than to the bones, because of the danger of reducing the number of thrombocytes and promoting severe anemia. The view has been expressed that there are no contraindications for roentgen treatment of leukemia when it is necessary by reason of the presence of symptoms, with the exception of leukopenia, thrombocytopenia, or anemia when these have been brought about by previous roentgen treatment. Pregnancy is a contraindication because of the effect of radiation on the fetus.

In polycythemia vera, more treatment is usually necessary than in leukemia. The object of the therapy is to depress the bone marrow cells enough to reduce the number of circulating red blood cells. The view has been expressed that this condition responds better to spray radiation than to spot radiation over the bones and the spleen.

In purpura haemorrhagica, intensive treatment of the spleen is sometimes effective but should be used only when for some reason splenectomy is inadvisable.

It has been emphasized that in leukemia and in polycythemia vera the prime indication for radiation therapy is not merely the existence of the disease but the presence of symptoms. Radiation therapy is, in these conditions only palliative. It rarely, if ever, occurs.

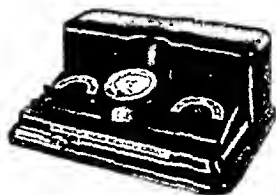
Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS. HOWARD A. CARTER, Secretary.

GENERAL ELECTRIC GALVANIC GENERATOR ACCEPTABLE

Manufacturer: General Electric X-Ray Corporation, 2012 Jackson Boulevard, Chicago.

The General Electric Galvanic Generator is used in muscle and nerve stimulation, common ion transfer therapy and electrolysis. It is a portable unit 15 inches wide, 11 inches deep and 6¼ inches high, and the shipping weight is 50 pounds. Accessories include two rubber covered electrode cords with



General Electric Galvanic Generator.

friction grip terminals and one spongiopilene dispersive pad with a metal back 6 by 8 inches in size. Models are equipped for operation on 105/125 volt, 50/60 cycles alternating current, 210/250 volt, 50/60 cycles alternating current and 105/125 volt direct current.

The apparatus contains a full wave vacuum tube rectifier and a filter system which converts alternating current into a smooth "ripple free" direct current. The current to the patient is controlled by a potentiometer type intensity regulator so that the current will be uniformly varied from zero to maximum. The transformer is air cooled, and safety against electrical shock is assured by insulation of the secondary from the primary winding. A two scale milliammeter (0-20-200) with a selector switch on the meter permits choice of either scale. A line switch and polarity switch are also supplied.

When direct current is used, a rectifying and filtering system is not provided. However, a series of relays insure that the grounded side of the direct current system is connected to the patient.

The firm submitted as physical evidence an oscillogram demonstrating that the rectified direct current is ripple free.

The unit was submitted to a qualified investigator for clinical use and he reports that it was satisfactory for use in common ion transfer and muscle stimulation.

The Council voted to accept the General Electric Galvanic Generator for inclusion on the Council's list of accepted devices.

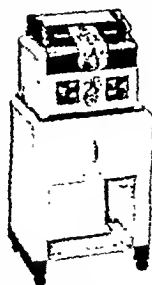
BURDICK SWD-52 SHORT WAVE DIATHERMY ACCEPTABLE

Manufacturer: Burdick Corporation, Milton, Wis.

The Burdick SWD-52 is a portable short wave diathermy unit designed for medical and minor surgical diathermy. The unit is similar to the previously accepted SWD-50 (THE JOURNAL, Aug. 20, 1938, p. 712) except that a cable with its output circuit and power control rheostat have been provided. The SWD-50 has been accepted for pad technic. Standard accessories include three condenser pads and two cuff electrodes of different sizes and one twelve foot cable. Surgical accessories and a lower cabinet to support the unit are optional.

A two-tube push-pull self-rectified circuit is utilized with loose inductive coupling to the patient's electrodes. The wavelength is approximately 15 meters. The patient's circuit is turned by a wide range, variable resonance control. Three patient's outlets are provided, one for use with large pads and average spacing, one for small pads with thicker spacing and one for the cable. Radio interference is minimized by steel construction, insulation and an inductance capacity filter in the line supply.

The firm claims that the unit provides a 300 watt output as measured by a lamp load, photoelectric cell and wattmeter, using an input of 800 watts. The final transformer temperature after a two hour run at full load was within the limits of safety.



Burdick SWD-52 Short Wave Diathermy.

Since the cuff circuit is the same as that used in the SWD-50 unit, the firm did not resubmit deep heating tests for this technic. No evidence was submitted for the pad technic. In order to demonstrate the production of heat deep within human tissue by the unit with the coil technic, the firm submitted six tests. Four turns of the cable were made around the thigh and a five-eighths inch felt spacing was used. Power was applied only up to the patient's skin heat tolerance. Following are the average temperatures received in degrees F.:

	Deep Muscle	Oral
Initial	97.8	98.2
Final	106.6	98.5

The apparatus was used clinically by the Council and was found to be satisfactory. It was efficient in tissue heating with cable and cuff techniques. The external construction of the machine is stable.

The Council voted to accept the Burdick SWD-52 Short Wave Diathermy Unit for inclusion on the Council's list of accepted devices.

Council on Foods

AT THE REQUEST OF THE COUNCIL ON FOODS, THE BOARD OF TRUSTEES GRANTED THE COUNCIL AN APPROPRIATION FOR THE PURPOSE OF MAKING A STUDY OF THE PROBLEM OF LEAD IN FOODS. THE EXPERIMENTAL WORK WAS DONE IN THE LABORATORY OF THE DEPARTMENT OF PHYSIOLOGY AND PHARMACOLOGY, NORTHWESTERN UNIVERSITY SCHOOL OF MEDICINE, THROUGH THE COURTESY OF DR. A. C. IVY. THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT, REPRESENTING A PART OF THE WORK THAT HAS BEEN DONE UNDER THIS SPECIAL GRANT.

FRANKLIN C. BING, Secretary.

EFFECT OF CALCIUM AND PHOSPHORUS ON RETENTION OF LEAD BY GROWING ORGANISM

LUDWIG G. LEDERER, M.D., Ph.D.

AND

FRANKLIN C. BING, Ph.D.

CHICAGO

Recent studies employing sensitive analytic methods have shown that traces of lead are present in practically all common foods which have been examined. Even minute amounts of lead may be detrimental to health if they accumulate in the body. To draw conclusions about the significance of the traces of lead that are ingested under ordinary conditions would require careful study and more data than now are available. The problem of lead in foods has been the subject of extensive reviews by Calvery¹ and Monier-Williams.² On the basis of evidence now available, lead must be considered a potential hazard and all possible contamination of food products with lead should be guarded against. The Council on Foods³ has repeatedly emphasized this point of view.

This report, which is part of an experimental study made possible by a special grant of the Board of Trustees of the American Medical Association to the Council on Foods, presents the results obtained in an investigation of the influence of calcium and phosphorus in the diet on the storage of lead in the growing organ-

1. Calvery, H. O.: Chronic Effects of Ingested Lead and Arsenic: A Review and Correlation, J. A. M. A. 111: 1722-1728 (Nov. 5) 1938.
2. Monier-Williams, G. W.: Lead in Foods, Reports on Public Health and Medical Subjects, No. 88. London, Ministry of Health, 1938.
3. Lead in Foods, in Report of Annual Meeting of the Council on Foods, J. A. M. A. 113: 680-681 (Aug. 19) 1939.

ism. It is becoming recognized that the composition of the diet has an important effect on the retention of lead. The data reported herein support the view that increased amounts of calcium in the diet diminish the amount of lead which is stored in the body. The data also show that the amount of phosphate in the diet has no effect on the storage of lead.

EXPERIMENTS

Procedure.—Albino rats which had been reared in the laboratory were selected as experimental animals. At the age of 3 weeks the rats were weaned and fed for one week on Sherman's diet B,⁴ which consists of ground wheat and dried milk with 1.3 per cent of sodium chloride. The animals then were divided into groups, placed in cages, each containing three or four animals, and fed the experimental diets. Each group contained approximately equal numbers of males and females and representatives from different litters. The animals were selected also so that the average weights of the rats in each group were approximately equal.

The experiments were planned to study the effect of both the level and ratio of dietary calcium and phosphorus on the retention of lead. The diets used were patterned after those devised by Shohl.⁵ The basal diet consisted of 79 per cent of yellow corn meal, 20 per cent of wheat gluten flour and 1 per cent of sodium chloride. The calcium, phosphorus and lead contents of the basal diet were determined. To each kilogram of the mixture was added 100 mg. of basic lead acetate, except for the diets fed groups J and K. Appropriate amounts of calcium carbonate or potassium phosphate, or both, were added to the basal diet so as to produce diets having the composition in terms of calcium and phosphorus shown in table 1. The rats were supplied distilled water from pyrex containers. Ordinary wire cages with false bottoms were used because it was not considered essential to devise a lead-free cage for the purpose of these experiments.

TABLE 1.—Composition of the Diets

Group	Calcium Percentage	Phosphorus Percentage	Ratio Ca:P	Added Lead Mg. Pb per Kg.
A	2.0	0.5	4.0	100
B	1.0	0.5	2.0	100
C	0.5	0.5	1.0	100
D	0.25	0.5	0.5	100
E	0.12	0.5	0.25	100
F	0.25	0.12	2.0	100
G	2.0	1.00	2.0	100
H	0.5	0.25	2.0	100
J	2.0	1.00	2.0	0
K	0.25	0.12	2.0	0

The basal diet consisted of yellow corn meal 79 per cent, wheat gluten flour 20 per cent and sodium chloride 1 per cent. It contained approximately 0.02 per cent of calcium, 0.10 per cent of phosphorus and 1.82 mg. of lead per kilogram by analysis. The calcium and phosphorus contents of the diet were adjusted by addition of calcium carbonate and dihydrogen potassium phosphate. Lead was added as basic lead acetate.

The animals were allowed to consume the diets freely for three weeks, when the experiment was terminated. The rats in groups J and K, which received no added lead in their food, were given daily by intraperitoneal injection 100 micrograms of lead in the form of a solu-

tion of lead acetate during the same period. At the end of the experiment roentgenograms were taken of each animal. The animals then were killed under ether anesthesia and, with precautions to avoid lead contamination, the liver, kidneys and femurs were dissected from each animal. The femurs of each animal were dried, ashed in an electric muffle furnace at a temperature which did not exceed 500 C. and analyzed for lead. In order to obtain sufficient material for analysis, it

TABLE 2.—Lead Content of the Femurs

Group	No of Rats	Dietary		Average Composition of Both Femurs			Micrograms of Lead per Gm. Dried Bone ± S. D.
		Calcium, %	Phos- phorus, %	Dry Weight, Gm.	Ashed Weight, Gm.	Ash in Dried Bones, %	
A	9	2.0	0.5	0.223	0.103	46.2	75 ± 22
G	10	2.0	1.0	0.206	0.095	46.1	61 ± 21
D	9	0.25	0.5	0.186	0.075	40.3	223 ± 45
F	10	0.25	0.12	0.196	0.082	41.8	213 ± 46

was necessary to pool the livers or kidneys of from two to four animals. These tissues were dried, ashed and likewise analyzed for lead.

Lead was determined by means of the dithizone method described by Clifford and Wichman⁶ with some of the modifications suggested by Laug.⁷ A titration-extraction procedure was used.⁸ The method, which need not be described, was studied until confidence could be had in the results. Duplicate determinations checked closely. Small amounts of lead added to evaporated milk could be recovered with a maximum variation of about plus or minus 10 per cent.

OBSERVATIONS

The animals in the various groups consumed their food in approximately equal amounts. Growth was poor, although none of the animals lost weight. The roentgenograms showed no evidence of a lead line. The bones appeared to be normal in all groups, except that the animals fed diets which were low in calcium had definitely poor bones. This was especially noticeable in groups D, E and F, which were given either 0.12 or 0.25 per cent calcium. No evidence of rickets, which might have been expected in the animals in groups D, E and F, was found in any of the animals. It is quite possible that the inclusion of lead in the diet affects the metabolism of calcium and phosphorus, even if present in the small amounts used in these experiments.

Data on the lead content of the femurs are included in chart 1 and table 2. In the chart are shown the values obtained in the first experiments, where four animals were contained in each group. The data show a marked diminution in the lead content of the femurs as the calcium content of the diet is increased. The animals in group E, for example, which were fed a diet containing 0.12 per cent calcium, had an average of 307 micrograms of lead per gram of dried femur, whereas the animals in group A, fed the diet containing 2.0 per cent calcium, had an average of 43 micrograms of lead per gram of dried femur. The data provided in the

6. Clifford, P. A., and Wichman, H. J.: Dithizone Method for the Determination of Lead, J. A. Off. Agri. Chem. 19: 130-156, 1916.

7. Laug, E. P.: Application of the Dithizone Method to the Determination of Lead in Biological Materials, J. A. Off. Agri. Chem. 21: 481-487, 1928.

8. Wilkins, E. S.; Willoughby, C. E.; Kraemer, E. O., and Smith, F. L.: Determination of Minute Amounts of Lead in Biological Materials, Indust. & Engin. Chem. (Anal. Ed.) 7: 33-36 (Jan.) 1935.

4. Sherman, H. C., and Muhlfield, Marie: Growth and Reproduction upon Simplified Food Supply: II. Influence of Food upon Mother and Young During the Lactation Period, J. Biol. Chem. 53: 41-47 (July) 1922.
5. Shohl, A. T.: Rickets in Rats: XV. The Effect of Low Calcium-High Phosphorus Diets at Various Levels and Ratios upon the Production of Rickets and Tetany, J. Nutrition 11: 275-291 (March) 1936.

chart also show that the level of phosphorus in the diet has no effect on the lead content of the femurs. The dried bones of groups A and G, for example, both contained 43 micrograms of lead per gram. Both groups received 2.0 per cent calcium in the diet, but the diet fed group G had 1.0 per cent of phosphorus, while the diet fed group A had 0.5 per cent. An even more striking example of the lack of any effect of phosphorus is made evident from a comparison of the results obtained with groups D and F, both of which received diets containing 0.25 per cent of calcium, but in the diet fed to group D there was 0.5 per cent of phosphorus and, in the diet fed to group F, 0.12 per cent of phosphorus. The average amount of lead, expressed as micrograms per gram of dried femur, was 210 in group D and 219 in group F.

In table 2 there is provided a summary of the analyses of the bones of four groups of animals from the data recorded in chart 1 and also from data obtained with additional animals. The later experiments duplicated the earlier series. The amount of lead in the femurs, however, was on the average about 40 micrograms per gram higher in all the groups in the second series. This may have been due to differences in the lead content of the animals at the beginning of the experiment or perhaps to seasonal variations in metabolism. All the data were averaged and the results treated statistically. The table provides the calculated standard deviations of the mean lead content of the femurs in each of four groups of animals. The data show conclusively that the deposition of lead in the bones of growing animals is retarded by increasing the calcium content of the diet. The data also show conclusively

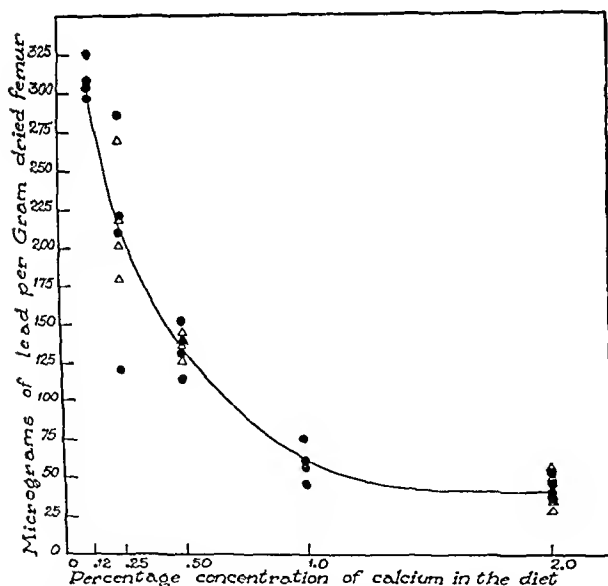


Chart 1.—Decrease in lead content of bone with increasing amounts of calcium in the diet. The solid dots represent values for individual animals receiving 0.5 per cent phosphorus in the diet and different amounts of calcium. The hollow triangles represent values obtained in individual animals receiving diets in which the calcium-phosphorus ratio was made equal to 2.0. The curved line passes through the average values of all the animals. The lack of effect of dietary phosphorus is apparent.

that the phosphorus content of the diet has no significant effect on the amount of lead deposited in the bones. The table provides the average values for the dried weight, ashed weight and percentage of ashed weight in the dried femurs. These data show that the diets

which produced heavier bones containing a greater amount of ash produced bones which contained the least amount of lead. The data also verify in general the observations of Shohl⁵ on the effect of different ratios and levels of calcium and phosphorus on the composition of the bones, although a direct comparison cannot be made because we did not extract the dried bones with alcohol and ether before ashing.

The data on the lead content of the livers and kidneys are summarized in chart 2. Because of the necessity of pooling the samples, the data are not as extensive as in the case of the bones. The lead content of the kidneys reflects the lead content of the bones, being highest in animals having the highest amounts of lead in the bones and lowest in the animals which had the lowest amounts of lead in the bones.

The amount of lead deposited in the kidneys, expressed as micrograms of the element per gram of dried tissue, in general was less than the amount of lead deposited in the bones. The amount of lead deposited in the liver was much smaller. Further, the amount did not vary regularly with the calcium content of the diet.

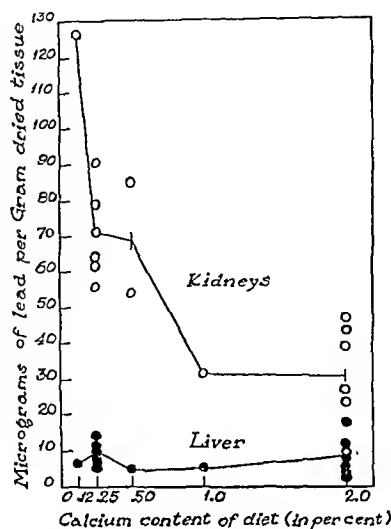


Chart 2.—Relationship between the lead content of the kidneys and liver and the calcium content of the diet. Each hollow dot represents one analysis, on two or more animals, of the lead content of the kidneys. Each solid dot represents one analysis of the lead content of the liver, representing tissue from three or four animals. The lead content of the kidneys decreases with increasing amounts of calcium in the diet; the content of lead in the liver remains relatively constant.

TABLE 3.—Effect of Injected Lead on Lead Content of Tissues of Rats Fed Varying Amounts of Calcium and Phosphorus

Group	No. of Rats	Diet		Average Lead Content of Tissues in Micrograms per Gm. Dried Tissue		
		Calcium %	Phosphorus %	Femurs	Kidneys	Liver
K	9	0.25	0.12	499 ± 66	147	45
J	10	2.00	1.60	400 ± 64	121	83

The data obtained in the injection experiments are summarized in table 3. The animals in group K received a diet containing 0.25 per cent of calcium and 0.12 per cent of phosphorus. In group J the animals received a diet containing 2.0 per cent of calcium and 1.0 per cent of phosphorus. As shown in the table, the average amount of lead deposited in the bones was about 25 per cent higher in the animals receiving the lower amount of calcium; but the data were variable and the difference between the two means, 499 plus or minus 66 and 400 plus or minus 64, both expressed as micrograms of lead per gram of dried bone, plus or minus the standard deviation of the mean, is not considered significant. Likewise the data in table 3 show that the

amount of lead in the kidneys of the two groups of animals was of the same order of magnitude. The animals receiving the diet containing the lower concentration of calcium had less lead in the liver than the animals receiving the higher amount of calcium, but there were not sufficient data to establish any significance to the difference. It was concluded that when a solution of a lead salt is injected intraperitoneally there is no essential difference in the lead content of the femurs, kidneys or liver. It is clear that the inhibitory effect of calcium on the retention of lead by the growing organism is primarily concerned with reactions that take place in the alimentary tract.

Calvery, Laug and Morris⁹ showed with dogs that a suitable concentration of calcium in the diet tends to prevent a high storage of lead in the bones and soft tissues of the body. It also retarded the onset of violent symptoms of lead poisoning. The calcium contents of the diets which they fed to dogs were 0.28, 0.13 and 0.10 per cent. Grant, Calvery, Laug and Morris¹⁰ also reported an extensive study with rats on the influence of dietary calcium and phosphorus on the storage and toxicity of lead. They fed two basal diets, one containing 0.13 per cent of calcium and 0.44 per cent of phosphorus, and the other containing 0.53 per cent of calcium and 0.22 per cent of phosphorus. Different amounts of lead arsenate were added to the basal diets. It was found that the animals which received a low calcium diet and 512 mg. of lead per kilogram of feed did not thrive, as shown by the condition of the animals and poor growth. The animals were maintained on each diet for an average period of ninety-three days; the animals surviving were killed and the femurs, brains, livers and kidneys were analyzed for lead and arsenic. Large differences in the lead content of the bones and soft tissues were observed in the different groups of animals, the larger amounts of lead being found in the tissues of the animals receiving the lower amount of calcium. Thus with the low calcium diet there was on an average 189 micrograms of lead per gram of dried femur, and with the relatively high calcium diet there was on an average only about 28 micrograms of lead per gram of dried femur.

The results reported by Calvery and his collaborators conflicted with some of the prevailing views on the relationship of calcium and phosphorus to the metabolism of lead. In their classic investigation of lead poisoning, Aub and his collaborators¹¹ not only established the principles for the treatment of this condition but also demonstrated a relationship between the metabolism of lead and that of calcium. Their conclusions may be stated in their own frequently quoted words: "It has been shown by chemical studies with animals that an analogy exists in the metabolism of calcium and lead. Various decalcifying agents have been shown to increase lead output. Conversely, the conditions favoring calcium retention also tend to a complete storage of lead in the bones." In another publication they wrote "Inasmuch as lead metabolism runs parallel

to that of calcium, the lead problem becomes essentially a problem of calcium metabolism."

While there are many data to support Aub's original contention that the elimination of lead which is already present in the bones is dependent on decalcifying processes, there are few data to support the conclusion that conditions which favor the retention of calcium tend also to favor the storage of lead in the bones. Indeed, the data reported here conflict with the latter view.¹² Further, Aub, Robb and Rossmel¹³ fed cats a meat diet or a meat diet plus milk and gave lead carbonate by insufflation, subsequently analyzed the long bones for lead and found no significant differences in the two groups. It is interesting to note that in our experiments in which lead was given by the parenteral route no difference could be found in the lead content of the tissues of animals receiving diets markedly different in calcium content.

In drawing conclusions about the effect of diet on the metabolism of lead, it is important to make clear whether one is dealing with lead already stored in the bones or with lead that is in the diet which is fed. Much confusion has resulted from failure to state the conditions under which the conclusions have been drawn. For this reason it is necessary to describe in some detail the data available in the literature, as they pertain to the results of the present study.

In 1932 Shelling¹⁴ reported some experiments with rats which indicated that the phosphate content of the diet was of more importance than the calcium content. He fed young rats an adequate diet to which was added 1.5 per cent of basic lead carbonate plus calcium carbonate, disodium phosphate or basic magnesium carbonate. Vitamin D in the form of viosterol in oil was given to some of the animals. As judged by growth, appearance and longevity, the rats receiving the added magnesium carbonate fared worst, and those receiving calcium carbonate fared almost as poorly. The animals receiving the stock diet with added lead carbonate thrived a little better; but the rats fed the same diet with the addition of sodium phosphate did best of all. The rats receiving vitamin D died much earlier than their mates which did not receive the vitamin, except for the animals receiving additions of phosphate, all of which thrived irrespective of vitamin D. No analyses of the lead content of the animals were made.

An extension of Shelling's work was made by Sobel and Kramer and their collaborators, and their most recent report summarizes the earlier data.¹⁵ They fed young rats diets which had 0.025 per cent of calcium and 0.262 per cent of phosphorus, 1.02 per cent of calcium and 0.262 per cent of phosphorus, and 0.025 per cent of calcium and 0.857 per cent of phosphorus. The lead content of each diet was from 0.80 to 0.82 per cent. After five days on the experimental diet half of the rats in each of the three groups were given

9. Calvery, H. O.; Laug, E. P., and Morris, H. J.: *The Chronic Effects on Dogs of Feeding Diets Containing Lead Acetate, Lead Arsenate and Arsenic Trioxide in Varying Concentrations*, *J. Pharmacol. & Exper. Therap.* **64**: 364-387 (Dec.) 1938.

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11. Aub, J. C.; Fairhall, L. T.; Minot, Annie S., and Reznikoff, Paul: *Lead Poisoning*, *Medicine Monographs* 7, Baltimore, Williams & Wilkins Company, 1926.

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13. Aub, J. C.; Robb, G. P., and Rossmel, Elsie: *The Significance of the Bone Trabeculae in the Treatment of Lead Poisoning*, *Am. J. Pub. Health* **22**: 825-830 (Aug.) 1932.

14. Shelling, D. H.: *Effect of Dietary Calcium and Phosphorus on Toxicity of Lead in the Rat: Rationale of Phosphate Therapy*, *Proc. Soc. Exper. Biol. & Med.* **30**: 248-254, 1932.

15. Sobel, A. E.; Yuska, Henry; Peters, D. D., and Kramer, Benjamin: *The Biochemical Behavior of Lead: I. Influence of Calcium, Phosphorus and Vitamin D on Lead in Blood and Bone*, *J. Biol. Chem.* **122**: 239-265 (Jan.) 1940.

vitamin D in the form of viosterol in corn oil. At the end of twenty-nine days the animals were killed and the blood and femurs were analyzed for lead. In each instance the animals receiving vitamin D had more lead in the bones than the controls receiving the same diet but no vitamin D. The bone ash in the animals fed vitamin D likewise was higher but still much below normal for rats of the same age. The highest amount of bone ash was found in the group receiving 1.02 per cent of calcium plus vitamin D, and this amounted to only 37.9 per cent of the fat-free dried bone. The high calcium diet resulted in a lower amount of lead in the bones. The high phosphate diet resulted in a still lower amount of lead in the bones.

The lead content of the diets used by these investigators amounted to approximately 8 milliequivalents of lead per hundred grams, about eighty times the concentration of lead in our diets. The calcium content of the diets used by Sobel and others was either 1.25 or 51 milliequivalents per hundred grams, the phosphorus either 25 or 83 milliequivalents per hundred grams. It would thus seem that these authors were observing the effects of lead on the metabolism of calcium and phosphorus in addition to the effects of calcium and phosphorus on the metabolism of lead. With these diets they confirmed Shelling's observations that the addition of phosphate to the basal diet had a beneficial effect. Because five of their six experimental groups had less ash in the femurs than control animals at the age of twenty-three days, the authors concluded that lead may be deposited in the bone while calcium is being withdrawn. They did not discuss the possibility of decalcification of the shaft of the bone and calcification of the epiphysis, which probably is what took place. It is known that lead is deposited in the trabeculae. Further, the groups receiving vitamin D uniformly had more bone ash and more lead than their corresponding controls. If attention is focused on these experimental animals, it equally well could be concluded that their results are in harmony with the view that conditions which favor the deposition of calcium salts in the bone also favor the deposition of lead.

Tompsett¹⁶ recently reported that he fed adult mice two different diets containing different amounts of fat and supplying relatively high or low calcium intakes. To these rations he added supplements of lead. In experiments of two weeks' duration he found much less lead in the bodies of mice receiving the so-called high calcium diet. He suggested as an explanation of the protective effect of high calcium diets that the reaction of the intestinal contents is made more alkaline and in this manner decreases the solubility of lead, which is assumed to be present as lead phosphate. This explanation of the beneficial effect of calcium in the diet is unsupported by direct experimental evidence. In addition, Tompsett fed mice added fat and also vitamin D in the form of cod liver oil and reported no effect on lead storage from either. The failure to note any effect of vitamin D on lead stored in the body may be ascribed to the fact that he used adult animals, whereas Sobel and his collaborators used young, growing animals.

There is evidence that lead phosphate is not the salt which would be precipitated from a solution containing lead, phosphate, calcium, chloride and various other sub-

stances which may be found in the intestinal contents and in the blood serum. Jowett¹⁷ found that the precipitate which is formed when lead salts are added to blood serum is a complex lead salt containing phosphate, calcium and chloride. Because the exact nature of the insoluble salt of lead is not known, the calculations of Sobel and his collaborators about the solubility of lead phosphate, which they offered as an explanation of their observations, certainly are premature.

Our experiments show that the beneficial effect of calcium in the diet in retarding the retention of lead by the body is due to reactions which occur in the intestinal tract. Presumably lead is rendered insoluble and the extent of this reaction is governed under ordinary conditions by the concentration of calcium and not by the concentration of phosphate. The calcium in the present experiments was provided in the form of calcium carbonate and it is possible that some lead is precipitated in the intestinal tract as the carbonate, either alone or in the form of some complex salt. It has been shown¹⁸ that the lead of potable water can be quantitatively removed by passing the water through a mixture of calcium carbonate and magnesium oxide. Further experiments therefore will be necessary to show whether or not the calcium of milk is as useful as the calcium of calcium carbonate in retarding the accumulation of lead in the body. At the present time the evidence that milk would be of value is largely presumptive.

Dietary factors other than calcium and possibly vitamin D may be important in preventing the storage of lead. Shields and his collaborators¹⁹ have shown that the inclusion of considerable amounts of apple in the diet results in the retention of appreciably less lead in the bodies of experimental rats. These authors suggested that the pectic substances in the apple may be responsible for the beneficial effect. They observed that a solution of pectic acid, prepared from pectin by mild alkaline hydrolysis followed by acidification with acetic acid, precipitates even small amounts of lead. Other dietary substances such as fat²⁰ may be concerned with the biochemical behavior of lead in the body. The prevention of absorption by dietary means would thus appear to be worthy of further study as a means of prophylaxis against the accumulation of lead in the body.

CONCLUSIONS

It is concluded from the present studies made with young albino rats that the amount of lead stored in the body is diminished by the addition of calcium carbonate to the diet. The addition of phosphate has no significant effect. In harmony with other reports lead is found to be stored chiefly in the bones, and the kidneys are found to contain relatively high concentrations as compared with the liver. The beneficial effect of calcium appears to be due to the prevention of absorption of lead from the intestinal tract, because the calcium content of the diet has no significant effect on the retention of lead which is administered by injection into the abdominal cavity.

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THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, JUNE 22, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE 1940 SESSION

New York City became the medical capital of the world early in June when the first advance guard of physicians began to register at the various hotels for attendance on a number of meetings of special societies which usually are held just before the annual session of the American Medical Association. With each day more and more physicians, accompanied frequently by members of their families, poured into the city. By Friday June 14, 12,864 physicians had registered their attendance on the annual session, exceeding by more than 2,500 the largest number ever previously registered in any session. The largest previously was the Atlantic City session at which the Canadian physicians also were in attendance. Physicians filled the lobbies of the hotels, thronged the scientific exhibits, were interviewed by one exhibitor after another in the Technical Exhibits, collected vast amounts of information and samples, applauded the Governor and the Mayor of New York at the opening session, participated in innumerable

social events, theater parties and radio broadcasts, and found time for an occasional hour at the World's Fair. Replete with information and entertainment and somewhat exhausted by the drive necessary to get the most out of a meeting of this kind, they began to depart toward the end of the week, expressing universal satisfaction in what they had gained at the meeting.

The problems that concerned the House of Delegates at this annual session were solved with a perspicacity and unanimity that were in themselves remarkable and yet indicative of the manner in which the medical profession is united today in solving its problems. Most significant was unquestionably the action taken with regard to medical preparedness. The Committee on Medical Preparedness was formed, including ten members of the House of Delegates and five officials of the Association, and is already in action trying to do all that the medical profession can do to place our country in a position to resist any aggression that may come upon us. Elsewhere in this issue appears a new section of *THE JOURNAL* entitled "Medical Preparedness," in which it is proposed from week to week to publish the actions of this committee and also such official announcements as may come from the Surgeon Generals of the United States Army, Navy and Public Health Service as well as from any other governmental agency requiring medical cooperation for medical preparedness. The minutes of the session as they are published in *THE JOURNAL*, will make clear the important actions taken by the House of Delegates.

The new officers elected include the President-Elect, Dr. Frank H. Lahey (described in an editorial comment in this issue), and a new trustee to succeed the late Dr. Charles Benjamin Wright; namely, Dr. William F. Braasch of Rochester, Minn. San Francisco was chosen as the place of the annual session of 1943.

On four floors of the Grand Central Palace the largest technical and scientific exhibits ever assembled were besieged by great numbers of physicians. Many of the technical exhibitors had prepared new installations of equipment especially for this occasion. A sympathetic gesture was the decision at the end of the session to present surplus supplies to the French War Relief. The Scientific Exhibits subsidized by the American Medical Association served a most useful purpose in graduate education; the individual exhibits surpassed in quality and in interest any similar collection available at any time in this country. Many a visitor to the annual session feels that he gains the utmost in graduate education from these exhibits.

The opening meeting of the annual session was held in the Grand Ballroom of the Waldorf-Astoria. This magnificent hall was packed to the doors and hundreds stood throughout the meeting. The Doctors' Symphony Orchestra, composed of physicians and related professional workers of New York, gave a demonstration of musical competence equal to that of many of the best professional aggregations. The Governor of New York:

brought the audience to its feet with a stirring appeal for medical cooperation in the maintenance of our democracy and told the assembled physicians that they were the ones to solve the problems of medical care for the American people. The Mayor of New York City, who had flown from Ottawa specifically for this occasion, told of his admiration for medical service and invited the physicians in attendance to visit the medical institutions of New York. The general sessions of the Association, the round-table conferences and all the meetings of the various sections were heavily attended, and the discussions were exceptional.

In the arrangements for the annual session of 1940 the Medical Society of the County of New York and the Medical Society of the State of New York gave complete and valuable cooperation. The radio program from this annual session was the largest ever attempted, including numerous broadcasts from local stations as well as on the national chains. The newspapers of New York, overwhelmed by the news of the war, nevertheless gave pages on some days and many columns on others to the news of the annual session. No doubt the success of this great session will stimulate the authorities of New York City, the hotel owners and the Convention Bureau to set in motion the necessary steps to provide that great metropolis with a convention hall adequate to the needs of an annual session of this type. In attendance, in quality and in every other way, it set a mark for scientific meetings.

THE FETAL FUNCTION OF THE THYROID

The fetal function of the endocrine glands has presented interesting problems for the physiologists. Certainly these glands do not remain inactive, particularly toward the end of gestation, only to assume full function suddenly at the moment of the infant's expulsion from the uterus. A number of water soluble substances may pass from the mother to the child, and vice versa. Maternal hormones reach the fetus, as demonstrated by the phenomenon of swollen mammary glands and the presence of so-called witch's milk in newborn infants of both sexes. The permeability of the placenta to at least some of the fetal hormones appears evident from several experiments. Carlson and Ginsburg¹ removed the pancreas from pregnant bitches that were almost at term and found that diabetes failed to develop until after delivery but occurred soon after. Apparently the fetal pancreas supplied the needed insulin. Pack and Barber² injected insulin into the fetuses of goats in utero and produced a decrease in the maternal blood sugar, thus demonstrating the permeability of the placenta to hormone transmission. Randall and Ryncarson³ found that newborn infants of diabetic mothers

presented not infrequently at the time of birth symptoms of hypoglycemia. They state that the metabolic condition in a pregnant woman with diabetes improves somewhat in the second half of pregnancy, presumably because of the activity of the fetal islands of Langerhans. After birth the child's pancreas continues to hypersecrete with resulting hypoglycemia. Ujiié⁴ found that partial removal in rabbits of the parathyroids or the thyroid resulted in an increase of the residual nitrogen and the amino acid fractions of blood nitrogen. These values persisted when the animals became pregnant during the first half of pregnancy but diminished in the course of the second half and returned to almost the values obtained before extirpation. This was interpreted by assuming that the accumulation of non-coagulable nitrogen in the blood took place as the result of extirpation and altered metabolism, and that during the second half of pregnancy the fetal parathyroids and the fetal thyroid supplied the mother with these hormones. These experiments seem to establish the permeability of the placenta to the parathyroid and thyroid hormones.

A striking clinical demonstration of the function of the fetal thyroid is offered by a clinical case reported by Zondek.⁵ He had the rare opportunity of following the development of idiopathic myxedema in a female patient for some years. The woman became pregnant after two years' treatment with thyroxine and gave birth to a normal child. During the first three months of pregnancy, symptoms did not appear; only the heart showed slight dilatation of the left ventricle, flattening of the PT deflection and lowering of the RS complex as the first indications of a beginning relapse. These changes became apparent during treatment with thyroxine and suggested that the pregnancy had an injurious effect on the maternal thyroid gland. At this point treatment with thyroxine was discontinued but contrary to expectation further symptoms did not appear up to the period after delivery. In the ninth month the basal metabolic rate was -1 per cent as compared with -29 per cent before the pregnancy and before the patient was given thyroxine. Shortly after delivery all the typical symptoms reappeared with "dramatic rapidity"—marked puffiness of the face, swelling of the eyelids, hands and feet, low and rough voice. Six weeks after delivery the basal metabolic rate was -29 per cent and the heart showed the typical alterations observed in myxedema. Thyroxine treatment once more effected improvement of all these symptoms. Zondek concludes that the sudden relapse after termination of pregnancy must be connected with the fact that the substituted activity of the fetal thyroid which had existed during the last months of pregnancy was no longer present.

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Current Comment

CURRENT COMMENT

JOUR. A. M. A.
JUNE 22, 1940

FRANK HOWARD LAHEY—PRESIDENT-ELECT

Perhaps the greatest single attraction in the field of graduate education in the United States for a number of years has been Dr. Frank Howard Lahey of Boston, just elected to the position of President-Elect of the American Medical Association, shortly after passing his sixtieth birthday. He was born in Haverhill, Mass., on June 1, 1880, and received the degree of doctor of medicine from Harvard University in 1904. After his graduation he served as surgeon in the Long Island Hospital in 1904-1905 and in the Boston City Hospital, 1905-1907, and became resident surgeon of the Haymarket Square Relief Station in 1908 and instructor in surgery in Harvard Medical School, 1908-1909 and from 1912 to 1915. He was assistant professor and later professor of surgery in Tufts Medical School from 1913 to 1917. He also served as professor of clinical surgery in Harvard Medical School in 1923-1924. He has been for some time surgeon in chief of the New England Deaconess and New England Baptist Hospitals and director of surgery in the Lahey Clinic. During the World War he served as major and also as director of surgery in Evacuation Hospital 30. He is a regent of the International College of Surgeons in Geneva, fellow and a member of the board of governors of the American College of Surgeons and a member of the American Surgical Association and the American Association for the Study of Goiter. His chief literary contribution, in addition to many periodical articles, is the Lahey Clinic number of the *Surgical Clinics of North America*. He has been a member of the editorial boards of *Surgery, Gynecology and Obstetrics* and of the *New England Journal of Medicine*. In the American Medical Association he was appointed by President Jabez N. Jackson at the Washington session in 1927 as a member of the Council on Scientific Assembly for a term of five years (to end in 1932); he was reappointed for a five year term (to end in 1937) by President E. H. Cary at the New Orleans session in 1932. He was appointed by President Irvin Abell at the San Francisco session in 1938 as a member of the Council on Medical Education and Hospitals for a term of seven



FRANK H. LAHEY, M.D.
PRESIDENT-ELECT OF THE AMERICAN MEDICAL ASSOCIATION

years and resigned following his election to the presidency. He was also a member of the Advisory Committee to Cooperate with the Bureau of Medical Economics of the American Medical Association Outlining the Necessary Procedure for Making Studies and Reports of the Prevailing Need for Medical and Preventive Medical Service (later called the Committee on Medical Care), which was established by the Board of Trustees at its February 1938 meeting. He was secretary of the Section on Surgery, 1926-1929, and chairman of the Section on Surgery, 1929-1930. It is doubtful that any other surgeon in the United States is more widely known to the medical profession throughout the nation than is Frank Howard Lahey. He has traveled widely and often and has given freely of his time for improving the quality of surgical diagnosis and procedure. He is a proficient speaker and will fill with distinction the new position of leadership which has just been given to him.

SAFE DRIVING AT NIGHT

Nineteen thousand two hundred persons were killed at night in motor vehicle accidents in the United States during 1938. Although less than one third of the total daily traffic was on the highways at night, 59 per cent of all fatal traffic accidents occurred during the hours of dusk and darkness. The amount of driving after drinking is higher at night and the hours of greatest fatigue are the hours of darkness; however, the Committee on Night Traffic Hazards of the National Safety Council in its 1939 report says that lowered visibility constitutes the major difference in the hazards of night and day driving. The committee points out how adequate visibility can be provided for safe night driving. Motorists should maintain their headlights in good condition. Head lamps can provide safe lighting for moderate speed if the lens is clean on both sides, if the bulb is not blackened, if the reflector is clean, and if all electrical connections are kept in proper condition so as to insure adequate voltage at the lamps; if the head lamps are aimed and focused correctly and if they are used properly; that is, if the upper beam is used when there are no approaching drivers and the lower beam is always used when approaching other drivers, and when driving on lighted highways or lighted city streets. Recent tests have shown, the

committee says, that the average head lamp on the road is producing less than half its possible light output because of tarnished reflectors, dirty lenses and blackened bulbs. The new "sealed beam" headlights appearing on most 1940 passenger cars are intended to provide higher light output in the driving beam for the open road and reduce the glare for the oncoming driver when the traffic beam is used. Most city streets still have the same type of lighting equipment that existed in the horse and buggy age; such lighting systems are wholly inadequate today from the point of view of traffic. The old types of illuminating emit light in all directions at about the same intensity. Illuminants today should be designed to capture the upward emitted light, the light directed toward private premises and the light that results in glare, and distribute it so as to produce uniform pavement brightness. In many places where improved lighting has been installed there has been a reduction in night accidents. In sixteen counties in New Jersey, for example, where modern safety lighting installations have been made, there was a reduction of 37 per cent in the night accident fatalities in the first eleven months of 1938 as compared with 1937. More data are needed to reveal the effect of different kinds of street lighting on accidents of various types. State and city authorities should make a scientific analysis of night accidents to determine the high accident areas and then study the visibility conditions to see whether there is adequate lighting for safe driving. Some cities mean to economize by waiting to turn on their street lights until it is quite dark. This must result in unnecessary accidents, for lighting is essential to the safety of both pedestrians and motorists. If any reduction in street lighting hours is made, it should be in the early morning hours of the summer when the streets are partly empty. In the early evening, when traffic is heaviest, such attempts at economy in street lighting should not be attempted. In many cities and towns a multiplicity of neon and other electrical signs in areas where traffic is controlled by stop and go signals has created a problem. More data are needed to reveal the effect of different kinds of street lighting on accidents. The Committee on Night Traffic Hazards of the National Safety Council proposes to make this study a major activity during the current year.

DR. CHEVALIER JACKSON RECEIVES DISTINGUISHED SERVICE MEDAL

Among the honors bestowed by the American Medical Association on its members who have won distinction, the one most carefully selected is the Distinguished Service Medal and Citation. Previous recipients have been Dr. Rudolph Matas of New Orleans and Dr. James B. Herrick of Chicago. The 1940 medal was bestowed on Dr. Chevalier Jackson of Philadelphia, known throughout the world as one of the greatest leaders in the field of otolaryngology and especially distinguished for his contributions to bronchoscopy. The physician who receives this medal is selected from

a great number of nominations which are made to the committee on this award. They send five nominations to the Board of Trustees, which in turn selects three names from the five; at the very opening of the House of Delegates one of these three is elected to receive the medal and citation. On this occasion the other two nominations presented to the House of Delegates were Dr. Ludvig Hektoen and Dr. James Ewing. The name of Dr. Chevalier Jackson was proposed also in 1939. Dr. Jackson, who because of illness was unable to attend the meeting to receive the medal in person, is now 74 years old. He received his degree of doctor of medicine from Jefferson Medical College in Philadelphia in 1886. He was professor of laryngology at the University of Pittsburgh from 1912 to 1916 and at Jefferson Medical College,



CHEVALIER JACKSON, M.D.
AWARDED DISTINGUISHED SERVICE MEDAL

Philadelphia, from 1916 to 1924, when he became professor of bronchoscopy and esophagoscopy at Jefferson and at the University of Pennsylvania Graduate School of Medicine. He held both positions until 1930. He retired recently as professor of clinical bronchoscopy at Temple University School of Medicine. His honors include fellowships in practically every leading organization devoted to his specialty throughout the world. He has been decorated by France, Belgium, Italy and Brazil. His writings include three books devoted to his specialty and innumerable contributions to systems of medicine and to surgery. He also received not long ago the Bok award from the city of Philadelphia, given to the resident who in the preceding year has "performed or brought to its culmination an act or contributed a service calculated to advance the best interests of the community."

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

COMMITTEE ON MEDICAL PREPAREDNESS

Dr. Irvin Abell, Louisville, Ky., Chairman

Dr. Charles A. Dukes, Oakland, Calif.

Dr. Roy W. Fouts, Omaha

Dr. Stanley H. Osborn, Hartford, Conn.

Dr. John H. O'Shea, Spokane, Wash.

Dr. James E. Paullin, Atlanta, Ga.

Dr. Walter G. Phippen, Salem, Mass.

Dr. Fred W. Rankin, Lexington, Ky.

Dr. Harvey B. Stone, Baltimore

Dr. Samuel E. Thompson, Kerryville, Texas

Ex Officio:

Dr. Arthur W. Booth, Elmira, N. Y., Chairman Board of Trustees

Dr. Austin A. Hayden, Chicago, Secretary Board of Trustees

Dr. Nathan B. Van Etten, New York, President American Medical Association

Dr. Olin West, Chicago, Secretary American Medical Association

Dr. Morris Fishbein, Chicago, Editor Journal of the American Medical Association

RESOLUTION ON MEDICAL PREPAREDNESS INTRODUCED BY DR. ARTHUR W. BOOTH, CHAIRMAN, FOR THE BOARD OF TRUSTEES

WHEREAS, The ravages of war again pervade many of the nations and peoples of the world; and

WHEREAS, The President of the United States has indicated to the nation and to the Congress the desirability of military preparedness so that our people may successfully resist attempts to substitute other forms of government for the democracy established by the Constitution of our country; and

WHEREAS, Organization of the nation for preparedness involves from the first the complete cooperation of the physicians of the country for

1. Medical services in the Military, Naval, Aviation and Veterans' administrations:

2. Selection of men physically fit to serve with such agencies; and

3. Rehabilitation of those not physically qualified to enable them to participate in military activities; and

WHEREAS, Preparedness demands also

1. Medical service to the industrial workers engaged in war industries;

2. Continuance of medical care of the civilian population;

3. Education of young men to qualify them for medical service; and

WHEREAS, The American Medical Association now embraces in its membership more than 117,000 of the licensed physicians of the United States; and

WHEREAS, The headquarters facilities of the American Medical Association has available

1. Complete records of all qualified physicians in this country, with data necessary to determine largely their availability for military or other services;

2. Complete information concerning facilities for education in medicine, the medical specialties and other medical activities;

3. Complete information concerning the hospitals of the United States;

4. The necessary facilities for making prompt contact through addressing devices, periodicals and constituent bodies with all medical personnel and medical agencies; and

WHEREAS, Only in the headquarters of the American Medical Association, as far as is known, are such information and facilities available; and

WHEREAS, The American Medical Association is not only the largest but also the only organization containing in its membership qualified physicians in every field of medical practice; and

WHEREAS, During the World War of 1914-1918 the American Medical Association aided in making available the services of more than 60,000 physicians for military and related activities; therefore, be it

Resolved, That the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness, to consist of seven members of this House, with the President of the Association, the Secretary of the Association, the Secretary of the Board of Trustees, and the Editor as ex officio members; and be it further

Resolved, That this committee establish and maintain contact and suitable relationship with all governmental agencies concerned with the prevention of disease and the care of the sick, in both civil and military aspects, so as to make available at the earliest possible moment every facility that the American Medical Association can offer for the health and safety of the American people and the maintenance of American democracy.

REPORT OF THE REFERENCE COMMITTEE UNANIMOUSLY ADOPTED BY THE HOUSE OF DELEGATES

Your committee is proud to see the patriotic tradition of the medical profession so well exemplified in this spontaneous and thorough resolution of our Board of Trustees. It is in strict accord with the history and traditions of the American Medical Association which has always been foremost in offering all its facilities and services to our government in times of stress or emergency. The committee has learned that through an unintentional omission the name of the chairman of the Board of Trustees was not included among the ex officio members and the method of appointing the members from the house was not specified.

We feel that the Chairman of the Board of Trustees should be included among the ex officio members and that the members selected from the House of Delegates should be appointed by the Speaker of the House of Delegates.

Your committee wholeheartedly approves this resolution and moves its adoption with the inclusion of these two changes.

FRANCIS F. BORZELL.	EDWARD M. PALLETTE.
JAMES R. McVAY.	J. DUFFY HANCOCK.
McLAIN ROGERS.	EDWARD R. CUNIFFE.

ANNOUNCEMENT TO THE HOUSE OF DELEGATES BY COL. G. C. DUNHAM, U. S. ARMY MEDICAL CORPS

To the House of Delegates:

The following is a tentative plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency. This plan has been prepared by the office of the Surgeon General of the Army and is submitted to the House of Delegates of the American Medical Association for its consideration.

1. The American Medical Association to be asked to conduct a survey of the medical profession through its state and local activities.

2. The local or county societies to canvass its members to determine, of those who express a willingness to serve, who should be available for the military service and who, on account of their age, physical disability or commitment in civil capacities should remain at home.

3. The county society to give to each one who expresses his willingness to serve, even though he may be selected to remain at home, a button similar to that which was designed for the Volunteer Medical Service Corps during the last war.

4. The county societies to list those who are selected for the military service according to their professional qualifications, listing as surgeons, psychiatrists, and so on, only those who are members in the national specialists' organizations. Also to select from those who are to remain at home, qualified men for examination boards.

5. The state societies to maintain an available roster of its members.

6. The American Medical Association to maintain a numerical roster of availability by states.

7. The Medical Department of the Army to have one or more selected officers on duty at headquarters, American Medical Association, in Chicago.

8. The War Department, Corps Areas or regional officers to call on the American Medical Association for physicians or specialists as and when required.

9. The American Medical Association to call on the states, according to their quotas, for the physicians required.

10. The state, in turn, to call on its local societies for its quota of physicians.

In the quotas, credits would be given for sponsored unity, and preference would be given to reserve officers wherever their qualifications warrant.

It appears that, in the event of a national emergency of great magnitude, it would be very necessary to conserve the medical profession. This plan would distribute the professional load and, if properly administered, should prevent the stripping of rural and isolated communities of their necessary medical personnel.

There could be an extension of this plan to cover the training program for technicians. The same societies could conduct a survey of the teaching institutions

to determine their availability and suitability for the training of such enlisted specialists as would be required. Rational medical service for civilian groups in war industries could be coordinated by the same administrative units.

REPORT OF THE REFERENCE COMMITTEE.

Your committee has carefully considered this resolution of Colonel Dunham's and is pleased to see such evidence of a desire for cooperation. We endorse the principles advocated but feel that the details should best be left to the committee established by the resolution of the Board of Trustees.

Your committee feels that in the choice of personnel every physician capable of rendering service be given opportunity to offer such services to our government and that in the selection of personnel for special services there be no arbitrary selection on the basis of organizations, or bodies thus far still in a developmental stage, but rather that membership in well recognized scientific specialty organizations, hospital appointments and similar qualifications be also considered for this purpose.

We therefore move that the thanks of the House be extended to Colonel Dunham and that the general principles of his resolution be endorsed.

EDWARD R. CUNIFFE.	JAMES R. McVAY.
J. DUFFY HANCOCK.	McLAIN ROGERS.
FRANCIS F. BORZELL.	EDWARD M. PALLETTE.

SUPPLEMENTAL REPORT OF THE REFERENCE COMMITTEE

Information has come to the members of this committee that it is expedient to change one part of the resolution offered by the Board of Trustees and adopted by the House of Delegates last Tuesday. The ex officio members of the designated committee reside in New York and Chicago, leaving but seven members for the rest of this great country. Information from military authorities indicates that three additional members would be necessary to organize properly the United States. Therefore your committee recommends that that part of the resolution be changed to read as follows:

"Resolved, that the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness to consist of ten members of this House, with the President of the Association, the Chairman of the Board of Trustees, the Secretary of the Association, the Secretary of the Board of Trustees, and the Editor as ex officio members."

J. DUFFY HANCOCK.	EDWARD R. CUNIFFE.
JAMES R. McVAY.	

Under the terms of a resolution adopted by the House on Tuesday, and amended today, the Speaker of the House is directed to appoint ten members of a preparedness committee to serve with the five members named in the resolution.

The following members of the House are appointed: Stanley H. Osborn, Section on Preventive and Industrial Medicine and Public Health. Walter G. Phippen, Massachusetts. Harvey B. Stone, Maryland. James E. Paullin, Section on Practice of Medicine. Fred W. Rankin, Section on Surgery, General and Abdominal. Roy W. Fouts, Nebraska. S. E. Thompson, Texas. Charles A. Dukes, California. John H. O'Shea, Washington. Irvin Abell, Kentucky. General Chairman.

ORGANIZATION SECTION

PROCEEDINGS OF THE NEW YORK SESSION

MINUTES OF THE NINETY-FIRST ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN NEW YORK, JUNE 10-14, 1940

HOUSE OF DELEGATES

First Meeting—Monday Morning, June 10

The House of Delegates convened in the Jade Room of The Waldorf-Astoria and was called to order at 10:15 a. m. by the Speaker, Dr. H. H. Shoulders.

Preliminary Report of the Reference Committee on Credentials

A preliminary report of the Reference Committee on Credentials was submitted by the chairman, Dr. J. Newton Hunsberger, Pennsylvania, who reported that 137 delegates with proper credentials had registered.

Roll Call

The Secretary called the roll and announced that a quorum was present.

Distinguished Service Award

Dr. Arthur W. Booth, Chairman of the Board of Trustees, presented the following report:

The Committee on Distinguished Service Award of the American Medical Association submitted five names to the Board of Trustees. In accordance with chapter VI, section 5, of the By-Laws the Board has selected by ballot the following names for presentation to the House in alphabetical order: Dr. James Ewing, New York; Dr. Ludvig Hektoen, Chicago, and Dr. Chevalier Jackson, Philadelphia.

The Speaker appointed as tellers Drs. Samuel J. Kopetzky, New York; Harvey F. Garrison, Mississippi, and B. F. Cook, Vermont.

The tellers spread the ballot and the Secretary announced that 143 delegates had been reported present and that 140 votes had been cast, of which Dr. Chevalier Jackson received 61, Dr. James Ewing 54 and Dr. Ludvig Hektoen 25.

Since no nominee received a majority of the votes, the Speaker announced that another vote would have to be taken and that, in accordance with the rules, the name of the nominee receiving the smallest number of votes, namely, Dr. Ludvig Hektoen, would be dropped from the ballot.

The Secretary announced that 147 votes had been cast but that only 145 delegates had been reported registered, and the Speaker declared that there was no ballot.

Dr. J. Newton Hunsberger, Chairman, Reference Committee on Credentials, stated that 157 delegates had been registered, and the Secretary announced that 145 votes had been cast, of which Dr. Chevalier Jackson received 74 and Dr. James Ewing 71. The Speaker declared Dr. Chevalier Jackson, who received a majority of the votes cast, to be elected by the House to receive the Distinguished Service Award of the American Medical Association.

Adoption of Minutes of St. Louis Session

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. Walter E. Vest, West Virginia, and carried, the House dispensed with the reading of the minutes and adopted the minutes as published.

Address of the Speaker, Dr. H. H. Shoulders

The Vice Speaker, Dr. R. W. Fouts, Omaha, presided while the Speaker, Dr. H. H. Shoulders, read his address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House:

I wish, first, to express my appreciation of the honor and privilege of addressing you again as your presiding officer.

Second, I must say that I have no recommendations to make with regard to the procedure which has been followed for many years in transacting the business of the House.

It is my wish and intention to cooperate with you in the performance of our respective duties in such a way that the actions taken on all matters presented shall truly represent the deliberate and considered judgment of the House.

You are keenly aware of your responsibilities as the legislative branch of the government of a medical organization which is one of the greatest, if not the greatest, in the world. Your sense of responsibility in this connection needs no encouragement from me. Nor could I enhance your appreciation of the greatness of this Association.

It occurred to me that it might be worth while for us to consider for a moment at this time the qualities and attributes of this organization which make it great. Some would say our greatness is due to the fact that we have 116,266 members, the largest membership of any medical organization in the world. Another might mention a long list of scientific achievements to the credit of the organization. Still another might point to the many contributions made to increasing the skill and ability of the medical profession in serving humanity. It is true that the American Medical Association is the largest medical organization in the world. Its contributions to medical science have been nothing short of marvelous. It is also true that its contributions to the betterment of human welfare have been inestimable. In my humble judgment neither one of these accomplishments, nor all of them together, account for the greatness of this Association. We all know that mere bigness has never made an organization great. We know that scientific achievements alone do not make an organization really great. We know also that contributions to advancement in the art of medicine do not make this organization great. These contributions and accomplishments are evidences of greatness but they do not explain the achievement of greatness.

We have seen human organizations composed of large numbers disintegrate and disappear. We have witnessed and are still witnessing, at the present time, something of the disaster which results from the application of scientific knowledge to very destructive ends. We know that scientific advancement in any field, when not guided and directed by a high order of ethical principles, may, and often does, bring about tragic consequences. This is especially true in the field of medicine. The consequences of such a situation, may, in fact, be more tragic than if the scientific advancement had never been made.

In our search for the qualities and attributes which are responsible for the greatness of this organization we must look backward a bit and underneath these evidences of greatness.

The following simple statement is found in the constitution of this organization: "The objects of the Association are to

promote the science and art of medicine and the betterment of public health." Those who wrote and adopted that phrase as a statement of purpose must have had something of the philosophy of service expressed by the Great Physician. But the mere adoption of such a statement does not suffice to account for greatness. We have witnessed on many occasions the adoption of noble statements of purpose by organizations scientific, political and otherwise. We have also witnessed the repudiation of these statements by acts soon after their adoption.

The extent to which this statement of purpose has permeated the organization and motivated its actions determines the measure of its influence in accounting for greatness: Reference to actions of the House on many occasions and on many issues will reveal that the spirit of the statement has been ever present.

A long time ago this House of Delegates adopted a code of ethical principles. That document, in my opinion, deserves a place in our reverence alongside the Declaration of Independence and the Constitution of the United States. Its provisions were wisely designed to accomplish a noble purpose. They were not intended to promote and protect the financial interests of individual doctors and they have never so operated. Their observance has never hindered scientific progress nor have they hindered the application of the science and art of medicine to the needs of humanity. The complete opposite is true. They have promoted the science and art of medicine and, what is more, they have operated in such a way as to make this progress safe. They have promoted the legitimate use and prevented the dangerous abuse of scientific advancement in the field of medicine. It is a fact that financial benefit to individual doctors results from the violation of these principles, not from their observance. In the same way injury comes to the public.

We find also that the spirit of democracy was breathed into the vitals of this organization at the very beginning of its life. That spirit, too, has remained. When the matter of freedom is touched by any issue raised in this House, your concern becomes alert at once, not for the freedom of doctors, but for the freedom of patients. You have, in fact, displayed more concern for the freedom of patients than you have for the freedom of doctors.

It is insisted at times that, if these principles were destroyed, professional progress would be augmented; that, if patients and doctors alike were subjected to the direction of some powerful individual or government agency, all the faults and defects in the present system of medical care would disappear and all would be perfect. We are the first to admit that, if all these directing and restraining influences were destroyed and all our activities and attitudes were determined and directed by a single individual or agency, a far different situation would be brought about. First, it would make of this organization a far more potent political force. Actions could be reversed overnight if political expediency seemed to demand. Convictions would be submerged and rendered impotent. It would make of us a streamlined political outfit, but no one could predict what the ultimate consequences would be. Under our existing rules of procedure, guided as we are by the influences referred to, we are in position to take a long range view of every situation. We are in position to consider not only the immediate but the remote effects of every new development. We are in position to make the kind of progress in the science and art of medicine that is safe. And, what is more, by preserving these principles we contribute to the preservation of that priceless heritage of freedom for all.

These are the attributes which, in my opinion, have made our organization great. To this House of Delegates has been committed the task of judging and preserving the qualities and attributes which deserve to live.

In Memoriam

This House of Delegates very appropriately established the custom of taking official notice of the death of Fellows who have served the Association in official capacities, either as members of the House or as officers of the Association.

Pursuant to this custom it now becomes the melancholy duty of the Speaker to call the roll of those who have passed into the Great Beyond since we met last May:

James H. Borrell, New York, 1937-1939.
Perry Bromberg, Tennessee, 1913-1915; 1917.
J. Forrest Burnham, Massachusetts, 1915; 1919-1934; 1935 special session; 1935-1936.
John M. Cooley, Pennsylvania, 1923.
Arthur E. Crow, Pennsylvania, 1925-1927.
H. A. Davidson, Kentucky, 1923; 1926-1927.
Robert V. Day, California, 1925-1926.
Thomas D. Doan, Illinois, 1918.
Charles A. Elliott, Chicago, Vice President, 1927-1928.
Alexander C. Ewing, Utah, 1903.
Charles Falkowsky Jr., Pennsylvania, 1936; 1938; 1938 special session; 1939.
Thomas P. Farmer, New York, 1933-1934; 1935 special session; 1935; 1937; 1938; 1938 special session; 1939.
George M. Fisher, New York, 1923; 1927-1928; 1934-1937; 1938 special session; 1938-1939.
William D. Haggard, Tennessee, 1905-1906; Section on Surgery, General and Abdominal, 1922; President-Elect 1924-1925; President 1925-1926.
J. N. Hall, Colorado, 1903; 1906-1908; 1919-1921; Member Judicial Council 1921-1931.
J. F. Highsmith, North Carolina, 1907-1909; 1912; 1921-1922.
Walter A. Lane, Massachusetts, 1937.
William V. Laws, Arkansas, 1913-1914.
W. C. Leary, Massachusetts, 1934.
Arthur T. Legg, Boston, Section on Orthopedic Surgery, 1936.
J. P. Lord, Nebraska, 1921; 1925.
Charles H. Mayo, Rochester, Minn., President-Elect, 1916-1917; President, 1917-1918.
William J. Mayo, Rochester, Minn., President-Elect, 1905-1906; President, 1906-1907.
Alexius McGlannan, Maryland, 1915; 1917; 1930-1932.
L. H. A. Nickerson, Illinois, 1908-1909.
Lee Vallette Parmley, Arkansas, 1936.
Fred W. Powers, Iowa, 1905.
E. A. Pray, North Dakota, 1920; 1922-1923; 1925; 1927-1928.
S. C. Red, Texas, 1929.
James E. Sadlier, New York, 1909-1910; 1929-1932.
William B. Small, Iowa, 1917-1920.
Robert P. Smith, Maryland, 1905.
Martin L. Stevens, North Carolina, 1907; 1923-1934; 1935 special session; 1935-1936; 1938; 1938 special session; 1939.
Charles W. Stone, Ohio, 1931-1935 special session; 1935-1937; 1939.
D. D. Swearingin, New Mexico, 1919.
W. O. Sweet, Arizona, 1918; 1935 special session.
Frederick H. Thompson, Massachusetts, 1911-1912.
Vernon L. Treynor, Iowa, 1934-1935 special session; 1935-1937; 1938 special session; 1939.
F. E. Trotter, Hawaii, 1924; 1930.
Earl R. Whipple, Pennsylvania, 1930.
C. B. Wright, Minneapolis, 1930, 1931, 1932, 1933; Trustee from 1933 until the present.

This roll contains the names of illustrious men in medicine. They carried the banner of our profession and held it high. Their examples of service and sacrifice are still, and will ever be, an inspiration to us.

It is suggested, Mr. Speaker, that the House rise and remain standing for one minute as an affectionate tribute to their memory.

At the request of the Vice Speaker the members of the House arose and stood in silent tribute to the memory of departed delegates.

Reference Committees

The Speaker announced the personnel of the Reference Committees and, without objection from the House, included the personnel of a Reference Committee on Executive Session:

SECTIONS AND SECTION WORK

Stanley H. Osborn, Chairman, Section on Preventive and Industrial Medicine and Public Health
George Gray Ward.....Section on Obstetrics and Gynecology
Thomas F. Thornton.....Iowa
Samuel P. Mengel.....Pennsylvania
Joseph F. Smith.....Wisconsin

RULES AND ORDER OF BUSINESS

John H. O'Shea, Chairman.....Washington
William D. Johnson.....New York
Edmond F. Cody.....Massachusetts
Hilton S. Read.....New Jersey
E. H. Skinner.....Section on Radiology

MEDICAL EDUCATION

Harvey B. Stone, Chairman.....Maryland
Elbridge J. Best.....California
L. A. Buie.....Section on Gastro-Enterology and Proctology
C. E. Kieley.....Ohio
George Blumer.....Connecticut

LEGISLATION AND PUBLIC RELATIONS

F. S. Crockett, Chairman.....	Indiana
Charles J. Whalen.....	Illinois
L. G. Christian.....	Michigan
Wingate M. Johnson.....	North Carolina
Thomas A. McGoldrick.....	New York

HYGIENE AND PUBLIC HEALTH

E. S. Hamilton, Chairman.....	Illinois
W. F. Draper.....	United States Public Health Service
Karl S. J. Hohlen.....	Nebraska
Clyde L. Cummer.....	Section on Dermatology and Syphilology
Felix Underwood.....	Mississippi

AMENDMENTS TO CONSTITUTION AND BY-LAWS

David D. Scannell, Chairman.....	Massachusetts
William Weston.....	Section on Pediatrics
Barney J. Hein.....	Ohio
Charles A. Dukes.....	California
A. A. Walker.....	Alabama

REPORTS OF OFFICERS

Walter E. Vest, Chairman.....	West Virginia
William R. Brooksher.....	Arkansas
Andrew F. McBride.....	New Jersey
James O. Graves.....	Louisiana
Walter B. Martin.....	Virginia

REPORTS OF BOARD OF TRUSTEES AND SECRETARY

Ben R. McClellan, Chairman.....	Ohio
John M. Birnie.....	Massachusetts
John H. Fitzgibbon.....	Oregon
William F. Braasch.....	Minnesota
Thomas M. Brennan.....	New York

CREDENTIALS

J. Newton Hunsberger, Chairman.....	Pennsylvania
George R. Dillinger.....	Indiana
Alonzo A. Ross.....	Texas
R. L. Zech.....	Washington
G. Henry Mundi.....	Illinois

MISCELLANEOUS BUSINESS

Charles G. Strickland, Chairman.....	Pennsylvania
Howard L. Snyder.....	Kansas
Henry C. Macatee.....	District of Columbia
Frederic E. Sondern.....	New York
Herbert L. Bryans.....	Florida

EXECUTIVE SESSION

Edward R. Cuniffe, Chairman.....	New York
Francis F. Borzell.....	Pennsylvania
James R. McVay.....	Missouri
J. Duffy Hancock.....	Kentucky
Edward M. Pallette.....	California
McLain Rogers.....	Oklahoma
W. H. Myers.....	Georgia

REAPPORTIONMENT OF DELEGATES

Arthur T. McCormack, Chairman.....	Kentucky
H. B. Everett.....	Tennessee
William A. Ellingwood.....	Maine
Olin West.....	Secretary
H. H. Shoulders.....	Speaker, House of Delegates

SERGEANTS AT ARMS

Frank E. Reeder.....	Michigan
J. H. Irwin.....	Montana
Horace J. Brown.....	Nevada

Address of President Rock Sleyster

The Speaker resumed the chair and presented the President, Dr. Rock Sleyster, Wauwatosa, Wis., who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

Two years ago this House of Delegates placed with me a responsibility which could not be lightly assumed. With it came unusual opportunities for service, for observations and for study. I have tried to take every advantage of these opportunities so far as my strength would permit. During this period I have covered every section of our country and regret only that I was unable to accept all invitations extended to me. In thirty-seven years of work in organized medicine I have met medical men from all sections in their own homes, in their own meetings and in their own fields of work and I have been able to discuss with them their individual problems. This has been a pleasant and a profitable experience. I hope these visits have been helpful to others as they have been to me, and I want you to know of my deep appreciation of this opportunity to serve. It is customary for your retiring President to record some impressions gained during his tenure of office.

SOLIDARITY

First I want to comment on a truly united profession. There are those who have tried through the creation of some small self-constituted groups and committees to create the impression

that the medical profession is seriously divided. This is not true! Purely local conditions do influence thinking; as the result of the serious determination to meet local responsibility, certain plans may be at variance with those found elsewhere. This is natural and to be expected. Almost to a man, however, I have found a solidarity of the medical profession. I have found everywhere an enthusiastic loyalty to the American Medical Association. I have found a singleness of purpose in maintaining the policies determined by this House of Delegates—their democratically constituted representative body. The report of the Secretary confirms this observation. A gain of 3,171 was recorded in forty-six constituent associations for the year ended March 1, 1940. During the past five years—years during which the organization was subjected to every attack ranging from vicious propaganda to actual indictment—the membership of the American Medical Association was increased by the entirely voluntary enlistment of more than 15,000 new members anxious to participate in the defense of medical standards, medical advances and the public health. This is our answer to propaganda designed to create the impression that ours is not a united group.

INTEREST

One cannot go about the United States without being impressed with the growth of interest in medical science and affairs. I have addressed lay meetings conducted by lay organizations with an attendance of more than fifteen hundred. I have addressed meetings of rural county societies with an attendance of nearly half the state membership, many of the members having driven more than a hundred miles to attend. Everywhere I have been impressed with the sincerity and earnestness of purpose of medical men to measure up to every responsibility in meeting problems related to making available the highest quality of medical service regardless of material reward. Everywhere I have been impressed with the desire to secure the benefits of all that is new in scientific advance. Never at any time, in any place, have I heard an expression of selfishness. The one great question has been "How may we better defend and preserve unimpaired American medicine in its present preeminent position—how may we better serve those who place their confidence in us?" I cannot refrain from commenting at this point on the American medical man as I have found him in his own community. I have always held him in highest esteem, but more than ever I admire his fine qualities of heart and mind. I know of no group with higher ideals or with greater unselfishness. I am proud of him, of all he stands for, and of his record of accomplishment.

WORK OF THE ASSOCIATION

In addressing you at St. Louis last year I called attention to the danger to the primary purposes of the American Medical Association found in the pressure of economic and political attack. It is to be regretted that an organization which through the years has been able to devote all of its resources, energy and thought to the advancement of science and improvement in its application should in any degree be diverted from its primary purpose in order to defend a record so outstanding. It is heartening to note that, in spite of all this interference, the work of the headquarters, the Councils, the Bureaus and publications has gone on with increasing efficiency and with increased demands for their service. These departments stand for ideals you have created. They are establishing standards you have set. They are making attacks you have directed. We are proud of the reforms they have brought about. But they are subject now, as in the past, to insidious counterattack by selfish interests both in and out of the profession. To them you owe a paternal defense and loyalty. This can be given only by a greater familiarity with their historical background and a better knowledge of their purposes and functions. It requires an understanding of the reasons for what are often innocent appearing movements, movements which may enlist even well intentioned members but which, if carried through, will take from these bodies functions which you do not wish placed with small, interested and self-appointed groups responsible to no one. The observation I most regret to report is the ignorance I have found everywhere regarding the activities of the Association. I wish it were possible that during

the coming year every component society could give over one meeting to an illustrated program bringing home to its members the activities and the policies of this Association. Speakers for such a venture could obviously not be furnished by our headquarters but they could be developed by each state society. A team could be selected and sent to our headquarters for necessary information and inspiration. Illustrative material could be provided. I know of no expenditure which would yield richer returns.

PREPAREDNESS

When the United States entered the World War the American Medical Association offered its services to the federal government in every capacity. More than 200,000 blanks for regular application for commissions in the Medical Reserve Corps were printed by the Association and circulated among physicians. As a result, more than 30,000 applicants were commissioned in the Army and, in addition, more than 3,000 in the Navy.

The American Medical Association acted as a center of information for physicians and sent out hundreds of letters each week in response to inquiries regarding the Army, the Navy, the Public Health and the Civilian Service. More than 5,000 pamphlets were printed by this office giving information regarding entrance into the Medical Corps. State and county organizations were supplied with detailed information concerning the work of physicians in their own communities and with those available for civil and industrial practice.

Early in the war the Association cooperated with the Provost Marshal General in relationship to the medical aspects of the selective service. The House of Delegates itself selected a special war committee to obtain information and to cooperate with all agencies in fulfilling to the utmost the medical needs of the organization.

At the time the Armistice was signed there were 35,000 medical officers in the Army and 3,000 in the Navy, which alone represented about 26 per cent of the entire medical profession of the country. Moreover the mobilization of the medical profession was based on utilization of the county and state medical societies which constitute the American Medical Association. Equally significant was the work of the physicians on the local draft boards, who provided our Army with men physically fit to accomplish the magnificent work which was accomplished in the World War.

At that time the mobilization of the industrial forces and the health of the nation and the protection of both the nation and its armies were regarded of such importance as to demand direct representation of the medical profession on the government board for national defense.

During the war the ratio of medical officers killed and dying of wounds was exceeded only by that of the infantry and artillery.

Today our nation is again preparing to defend itself to the utmost against any type of aggression from without. The medical profession, through its House of Delegates, I know, will pledge itself to give, as it has always given in the past, every iota of service that it is capable of rendering, and I would call on this House of Delegates to prepare, in suitable form, an offer of this type to the federal government.

PUBLIC RELATIONS

Today marks the opening of the annual session of an organization which has gathered each year for nearly a century from the four corners of this great country for the sole purpose of improving its service to the sick. What a contrast to a world gone mad in its efforts to take human life—a world exhausting its resources in preparing means of destruction! During the last half century the progress of science, and the art of its application in a country which has kept it free and unfettered from political interference, have brought blessings never before enjoyed by any people. Free men, unworried by restrictions, devotedly probing the unknown causes of suffering, have developed and applied knowledge which in the century past has doubled the life expectancy of man, has conquered many of the scourges, has produced specific treatment for

diseases formerly hopeless and has given the American people the highest standards of health the world has ever known.

All this has been coincidental with and because of the adoption and development by our nation, when first founded, of a political philosophy that government exists for its people instead of the people for government. Government was to protect individual freedom and expression, not to restrict it. Government was to make men free, to do away with fear, to encourage self reliance, to remove barriers to thought, to stimulate imagination and to secure rewards for sacrifice and effort. In this security, with this freedom from interference, science in all its branches has made progress in our lifetime beyond the wildest dreams of even a Jules Verne. No branch of science, however, has brought blessings to humanity comparable to those which can be credited to the progress of medicine.

During the last decade we have seen abroad the reversal of the gradual trend toward development of the individual. Each year there has been more and more encroachment on freedom of thought and opportunity of expression. Opportunists, playing on the emotions of people in distress, have gradually brought about a return of restrictions and regimentations which progress through the century had gradually reduced. Through fear and false promises of security, individual liberty has been surrendered. Centralization of power, with its inherent greed under dictatorship, is destroying the moral and the economic, scientific and spiritual values of the world. The survival of civilization is threatened. We have but to make simple comparison with records abroad to determine the disastrous effect on health and medical progress. As government regulation and interference increased, progress was stifled and regression was immediate.

In all this world only America stands out today as enjoying a freedom of thought and action which can carry on. Even here we note with growing concern certain trends toward centralization of power—trends which are placing under political regulation more and more lines of human effort. No informed and thoughtful person can deny the threat to medical progress and to the public health in some of the proposed legislation in Washington. If enacted as introduced it would represent an advance in restrictive regulation which would parallel the disastrous developments abroad. The results could not be different from those we have been led to expect through experience.

We come now to the universal question "What is the answer to the problems which confront us?" I have no answer. I know of no one magic word which will unlock the doors to the future and make easy a solution of problems which baffle the world. Of this I am certain: The problems we are called on to solve are only a part of a whole. They should not be singled out for radical treatment and experimentation. They are end results of economic failures of a world gone mad with greed—failures which have left their ugly mark on every walk of life. We are not to be blamed for their origin. No treatment can be efficacious which disregards cause and fails to treat the patient as a whole. No legislation which seeks to care for end results, by ignoring fundamentals, can furnish any adequate answer to the problem of medical care. It is not as simple as all this.

We do not deny a responsibility of government for the health of its people. The history of this Association is a record of continued effort to make government conscious of this duty. The great health movements of this country were initiated, fostered and promoted by the medical profession. We believe, however, that the proper function of government under a democratic system is the protection of its people from hazards to health, the promotion of standards of living which are favorable to health, and leaving to a free people the free choice of medical care when illness comes unless indigence prevents. We believe that the most profitable expenditure of government effort and means in the cause of the sick would be attained, as it has been in the past, through efforts toward the prevention of disease. Let government fight disease at its source as it should; protect the well from the hazards of contact; insure a mode of living which supplies the requirements of proper food and adequate clothing; eliminate the hazards of slum and tenement; provide proper housing; offer wholesome recreation; instruct the masses to avoid the dangers which go with igno-

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rance; educate them to take advantage promptly and intelligently of means now available when threatened with illness, and protect them from the appalling toll of senseless and unnecessary accidents. Let government concentrate its every effort on these sources of mortality and morbidity, and the cause of health, life and happiness will be advanced countless times more than it can be furthered by placing the sick under any form of political control.

The American Medical Association stands almost alone in defense of a historic system of freedom of science and its application for human welfare—a system which shows with pride a record unrivaled in the benefits it has brought to humanity. At this session let us rededicate ourselves to a defense of those principles and policies so necessary to preserve the accomplishments of the past, so necessary to guarantee progress in the future.

Address of President-Elect Nathan B. Van Etten
The Speaker presented the President-Elect, Dr. Nathan B. Van Etten, New York, who delivered the following address, which was referred to the Reference Committee on Reports of Officers:

Mr. Speaker and Members of the House of Delegates:

The last time the American Medical Association honored New York was in 1917, when the country was involved in the World War, which enlisted the medical profession in a selective draft, in military training, in military hospitals here and abroad and in active service on the field of battle.

Again the horrors of fratricide of even wider dimensions stir our emotions; again the uncertainties of the continuation of our civilization present a confusing prospect. After long preparation of a new generation of people, through education in paganistic ideologies, intolerance, persecution and brutal expulsion of nonconformists; after reversions from limited democracies to autocracies of the most violent types the pagans are marching, destroying peaceful homes and murdering innocent civilian neutrals in an effort to gain world domination. Again the medical profession in America is being mobilized to defend our liberal democracy against the invasion of foreign influences.

If paganism is successful in the European theater, its influence will be spherical and strong resistance must be organized in the United States. Although our borders may not be crossed, the subversive influence of so-called "fifth columns," already here, will grow stronger in our national administration and we may be compelled to follow dictation which may destroy the practice of medicine as we know it and as we hoped it might become. The American Medical Association has already offered all of its organizational facilities to the federal government and stands ready to cooperate to the limit of its ability in all measures of national defense. If we must enter a new war as combatants, we shall do so whole heartedly.

Love of country is a noble passion, but loss of the strong position of organized medicine in the United States would be deplorable and in the midst of this excited moment we must not lose sight of our patriotic ideals for the health and happiness of our people. We must not lose sight of the dangers to medical practice through concentrations of federal authority. Regimentation is a word which has been so greatly overworked that we shrink from its frequent use. We do not like the sound of totalitarianism. The thought of dictatorship in America is revolting. And yet appeals to popular emotion under theegis of patriotism, of social security, of pensions, of welfare, of relief of unemployment or of the people's health have carried many people from confidence in their ability to take care of themselves to belief that they have no personal responsibility for providing the sources of paternalism which they expect to enjoy. They believe that they will drink forever from the inexhaustible well springs of government. Dictatorships are built on such public sentiment. If such sentiments prevail, the medical profession may well expect a fate similar to that which developed in Germany and reduced the physician to a very low place in the social scale.

Compulsory health insurance was advocated here in 1917 and has been assiduously pushed by some welfare organizations which would have been obliged to close their doors long ago except for the generous support of the medical profession. Organized medicine has successfully prevented the legal establishment of any of these foreign systems, but the skeletal fabric has been erected in the systems of temporary emergency relief administrations and must be closely watched by all physicians lest they awaken some day to a realization that they have been regimented while they slept.

The President's plan for medical service through small hospitals in places where they are needed is in harmony with the platform of the American Medical Association and should be supported by the medical profession. There are, however, those who see in this part of the government program merely one foot in a door opening toward the development of the health program proposed by Senator Wagner in his original bill, S. 1620. This opinion is supported by Senator Murray's statement in reporting the modified Wagner-George bill 3230, when he said "Your committee recognizes that the situation of the health problems which have received its attention for several months." I believe, however, that we should, along with the President in this matter and favor the building of small hospitals and additions to existing hospitals where the need for them can be proved.

There are physicians who approve the President's plans in principle and in many details but who feel that it may be easy to enlarge the meaning of these hospitals to include all sorts of collateral construction that will absorb considerably more money than the ten millions which may be appropriated for the first year. Already the committee seems to be thinking in terms of elaborate diagnostic centers and seems to expect the government, rather than the local profession, to run them when all that is really needed is clean, warm places for the care of the acutely sick by competent personnel. Small communities cannot usually support specialists.

These hospitals can be considered as workshops for ordinary physicians sufficiently educated to take care of average patients who will make up the average tenantry of these institutions, these hospitals may satisfy a real need. For patients needing more expert care, would not ambulance service to carry them to larger hospitals in larger towns solve their problems in a better way than by trying to maintain experts in small places? Building elaborate hospitals in places where they cannot be supported or served locally will only waste money. Planting subsidized physicians in such places would not seem to inspire confidence in their ability to give competent service. Bringing medical care closer to people who may need it is admirable, but all phases of the question need careful study.

When Herman Biggs was health commissioner of the state of New York he proposed building cottage hospitals and laboratories in order to solve the rural problem. At a hearing before Governor Smith everybody seemed to favor the project. Finally the governor said he would like to hear what some country doctor thought about it and a doctor from Malone, a country doctor thought about it and a doctor from Malone, away up in the Adirondacks, rose and said "In the summer time the Adirondacks are full of city people and there are plenty of city doctors to take care of them, but in winter very few people are there and the country doctors and the small towns have plenty of facilities to care for them. All we ask you to do, Governor, is to keep the roads open." The cottage hospitals were not built. Good roads in the state of New York solved the rural problem. There is now a physician within thirty minutes of every person in the state.

The health needs of the people are the concern of the medical profession and must be discovered and remedied by physicians, many of whom have been discovered and remedied by physicians. The result is that the medical profession is constantly attacked by those who are playing political games and looking for public approval and salaried jobs. This situation should be reversed. The physician should direct local efforts in community health. A community that has no health program is

culpably negligent and so are the physicians who permit such service failure. There seems to be confusion over the question of real needs. What and where are they? The Council on Medical Education and Hospitals has made surveys of hospital needs in every state and its surveys do not justify the claims of those who are supposed to represent the people in public places. Are the Council's surveys correct? Might it not be worth while for every delegate to carry home the Council's appraisal of the health needs of his state and examine every county and community of his state from local points of view and ascertain for himself wherein the Council's figures differ from the factual data which he may be able to discover? The delegate who does not know local needs is not a fully qualified representative. If he cannot bring to this body an accurate picture which will justify intelligent action on national health problems his failure discredits the final judgment of this policy making group.

I would like to ask each delegate a few questions: Does your state need more hospitals in new locations? Does your state need more beds in existing hospitals? Does your state need more laboratories? Does your state need more ambulances? Does your state need and can it support more doctors? Does your state need more specialists? Does your state need more public health nurses? Does your state need more welfare workers? Does the health program in your state need financial help through federal agencies from the general tax pool? Have you read the Wagner health bill, S. 1620? Have you read the Mead bill? Have you read the Pfeiffer bill? Have you read the modified Wagner-George bill? Have you studied the President's plan? Do you know the American Medical Association's platform by heart? And do you understand its implications? Do you know Surgeon General Par-ran's plan for a crusade against syphilis? Have you thought about the possible effect of government interference on your own private practice? Does the medical service in your state serve your citizens adequately? Among other states New Jersey gives the following answer: "Within the scope of any reasonable definition of the term [adequacy] the facilities and their distribution in this state are adequate. Lack of acceptance of these facilities is the only reason for any person in this state not receiving medical care." Can you say the same for your state?

Once more may I remind you gentlemen of the House that you are the most powerful officers of organized medicine: that every one of you has been chosen to represent the physicians of your states and that on you rests a heavy responsibility at all times, and especially at a time when not only the practice of medicine as you know it but the problem of the future health of all our people is being attacked by amateur health philosophers who know nothing about the personal practice of medicine and who know about mass medicine only from superficial observation of foreign systems none of which have improved the quality of medical service or have produced anything superior to our present system in the United States in 1940.

None of you can claim perfection for our system of delivering medical service, but all of you know that the American Medical Association has been working for ninety-three years to improve it, that its chief concern is better health for all our people and that nowhere on earth have better results been attained.

Last year in St. Louis you developed a program for medicine which your Trustees translated into an eight point platform. The first point was the advocacy of coordination of federal health functions under one agency. This question has long been debated without result. In the January issue of *California and Western Medicine* it is stated that Dr. Thomas M. Logan proposed a national health department in 1871. I quote his words: "Let us have a Secretary of Health, as well as a Secretary of War. The achievement of this great national undertaking, as of every other great and good work among men, can only be effected by time and patience, by rational inquiry and enlightened persistence."

In 1875 the House of Delegates asked for a Secretary of Health in the cabinet of the President. A renewal of this desire for a coordination of health functions has met with the favor of many people within the profession and in public life. Representative Pfeiffer introduced a bill "To establish a Department of Health" on March 6, 1939. It was referred to the Committee on Expenditures in the Executive Department, where it still reposes. Hon. Paul McNutt advocates it strongly and plenty of support can be gained if the physicians of the country really desire it. If city health departments have proved indispensable, if state health departments have proved valuable, why has a national health department been so long postponed?

I believe that it is an important defensive measure and that it is timely to attack the problem with confidence in a successful issue.

I believe that it is a sane procedure for developing an intelligent correlation of national health problems.

I believe that erecting a national health department may be one way toward bringing the good offices of the government into concert with the ideals of the American Medical Association's platform.

I believe that the medical profession should go along with the government as far as possible for the common good without sacrificing its individual interests in the care of the sick and its collective interests in the prevention of disease.

I believe that the medical profession by tradition and by education is highly qualified to stimulate and sustain the morale of our people in times of crisis, when pagan ideologies are undermining and destroying high ideals. We must not minimize the seriousness of the present moment. Distance may ensure temporary safety, but disruption of our society is imminent.

If we have any religion, if we have faith in God and our fellow men, now is the time to cherish it and to fight for it with confidence that we shall prevail.

Address of Vice President Alphonse McMahon

The Speaker presented the Vice President, Dr. Alphonse McMahon, St. Louis, Mo., who addressed the House as follows:

Mr. Speaker, Members of the House of Delegates:

I have prepared no formal speech for this morning, for which fact I am sure you are quite happy. I do want to take this opportunity, however, to thank the House of Delegates for the honor accorded to the St. Louis Medical Society in electing one of its members to this office. I also want to thank the House for the pleasure given to me in the past year of being permitted to attend some of the activities of this great Association. Through this contact, I have learned something of the tremendous duties and responsibilities devolving on your officers. I want to thank these officers and the members of the Board of Trustees for the privileges accorded me in attending the sessions and also for the many courtesies extended to me in the past year. Thank you very much!

Address of Dr. T. C. Routley

On request of the Speaker, the Secretary presented to the House Dr. T. C. Routley, Official Representative of the Canadian Medical Association, who addressed the House as follows:

Mr. Speaker, Mr. President, Mr. President-Elect, Gentlemen:

I naturally am deeply touched by the warmth and cordiality of your welcome. For a period now of seventeen years you have been receiving me on my perennial visits, and on each occasion I have gone away feeling that I loved you more. You took me into your hearts and your homes and I have felt that I was amongst good friends.

Last night when I crossed from Canada to the United States only two incidents occurred which made me conscious of the fact that I was leaving my native land to proceed to that of a friendly neighbor. In the first instance, a most courteous young gentleman came to my compartment and told me that he was

the immigration officer. He asked me who I was and where I was going. He took time to sit down to tell me how welcome I would be in the United States.

The next caller was the customs man, who asked me how much hard liquor I had and one or two other similarly pleasant questions and assured me, too, that I would be most welcome in this country.

Mr. Speaker, I would ask you, sir, and ladies and gentlemen, to contrast that episode with what is taking place in other parts of the world today. I think, sir, that these two countries and this continent still have a great opportunity to demonstrate to the world what friendly neighbors can be to one another.

It is now my very pleasant duty to bring you cordial greetings from the Canadian Medical Association, which I have the honor to represent as its General Secretary. Our association is holding its seventy-first annual meeting in Toronto next week, and I am charged to say to you that every member and colleague of the American Medical Association who finds it convenient to come to Toronto will be most welcome indeed to all of the facilities and everything that we have to offer you in that city.

Since I saw you last we have had to take on a new job in Canada and, if you will forgive me for trespassing on your time for a moment or two longer, perhaps you would allow me to say this: When our country entered the war, our association did just what you would do here under like conditions. We told the government that we were prepared to assist. Within three days we had mobilized the medical profession of Canada. Ninety per cent of our profession volunteered their services, and of these 90 per cent volunteered to go anywhere or do anything that might be required. What we have attempted to do as a medical association is to put round pegs in round holes, and we are able to guarantee to our country that, no matter what the exigencies may be, we shall be able to provide medical personnel for all emergencies and all services, and indeed, sir, if there is any person in this room whom I had the good fortune to meet in England some twenty-three or twenty-four years ago, I would be most happy to meet him again. When your country entered the war, you sent across an advance guard of doctors and engineers. Some fifty of these doctors came down to Salisbury Plain, and as I was the only Canadian in that British army at that moment, I was charged with the responsibility of taking these men in tow and telling them something about forming fours and saluting.

You will recall that in those days doctors were supposed to know nothing about war. Many of us found out a lot about it before we were through. If any of those men happen to be here, I should greatly esteem it a privilege to meet them once again.

Mr. Chairman, let me say again I greet you, I salute you, and I trust as friendly neighbors we may always go on demonstrating to this world just what it means to understand man's humanity to man.

THE SPEAKER: This expression by the House I am sure should not be supplemented by any remarks of mine. We welcome and appreciate your presence.

REPORTS OF OFFICERS

Report of the Secretary

Dr. Olin West presented his report as Secretary, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary, with the exception of the portion referring to a proposed amendment to the Constitution, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws and with the further exception of that portion relating to the resolution from Louisiana dealing with the Harrison Narcotic Act, which was referred to the Reference Committee on Legislation and Public Relations.

Report of Board of Trustees

Dr. Arthur W. Booth, Chairman, presented the report of the Board of Trustees as presented in the Handbook as well as the following reports, which were referred to the Reference Committee on Reports of Board of Trustees and Secretary:

MEMORIAL TO DR. CHARLES BENJAMIN WRIGHT

The Board of Trustees records with deepest sorrow the passing of one of its members, Charles Benjamin Wright, on May 31. Charles B. Wright ever since his graduation from the Johns Hopkins Medical School has been an important factor in American medicine, first as a teacher and then as a practitioner. In recent years he has played an important role in the American Medical Association and for seven years has been a member of the Board of Trustees. So valuable have been his services that several years ago he was elected Chairman of the Executive Committee of the Board. This office he held at the time of his death. The medical profession is under many obligations to Dr. Wright for his indefatigable labors in its behalf. Charles B. Wright was cut off in his prime. That genial and lovable character will long linger in the memory of his fellow men and in the hearts of the medical profession. Our love and deepest sympathy go to Mrs. Wright and her children in their irreparable loss.

INDICTMENT OF THE ASSOCIATION

The Supreme Court of the United States has denied the petition of the Association for a writ of certiorari; hence the Association must now stand trial in the U. S. District Court for the District of Columbia. Word has just been received to the effect that representatives of the Association and the members of the administrative personnel who were indicted by an additional grand jury impaneled at the request of the Department of Justice of the United States must be in Washington on Friday morning, June 14, to make an appearance before the court. The Board of Trustees has authorized the Secretary and General Manager to enter a plea of not guilty for the Association.

CHANGE IN NAME AND IN POLICIES OF COUNCIL ON FOODS

When the Council on Foods was first established in 1929 there was a need for a body of experts to express authoritative opinions about health claims for foods. The formation of a committee to evaluate foods and the claims made for them represented a logical development of the recognition—by physicians, the general public and members of the food industry—of the expansion of nutritional knowledge by scientific and clinical investigators. The work of the Council, under the auspices of the American Medical Association, has developed rapidly but now there seems to be good reason for the Council to relinquish certain of its activities and to expand other phases of its work.

Following the passage of the new Federal Food, Drug and Cosmetic Act, standards and definitions of foods are being drawn up and ingredients of packaged foods must be declared on labels. This step is gradually eliminating one feature of the Council's activities, namely, making known the composition of processed and packaged foods. Again, the Federal Trade Commission with the great powers conferred on it by the Wheeler-Lea Amendment is empowered to police objectionable claims in the advertising of food products. Thus the Council is largely relieved of the necessity of indicating by means of its seal of acceptance those claims which are considered unobjectionable.

There remains for the Council the highly important function of expressing authoritative group opinion on foods and the nutritional claims made for them. At the present time there exists no organization in the United States which is capable of serving this purpose. While the Council plans no longer to accept many common foods for which standards of identity and composition have been established, it is still considered desirable that the Council should study and report on such products when it is considered to be in the interests of the public to do so. Further, the Council deems it necessary to retain its present policy of giving consideration to products intended for the feeding of infants or the sick and to foods which have been manipulated by the addition of vitamins, minerals or other dietary essentials with the aim of improving their nutritional value. It is proposed further that more attention be devoted to the preparation of reports on the nutritive aspects of foods and combination of foods.

Under the circumstances the Board has authorized a change in the policies of the Council and in its name so that it be called the Council on Foods and Nutrition in order to emphasize the change in the direction of its work.

RESOLUTIONS AUTHORIZING ORGANIZATION OF A COMMITTEE ON MEDICAL PREPAREDNESS

The Chairman of the Board requested the Secretary to read the following Resolutions Authorizing the Organization of a Committee on Medical Preparedness, which were referred to the Reference Committee on Executive Session:

WHEREAS, The ravages of war again pervade many of the nations and peoples of the world; and

WHEREAS, The President of the United States has indicated to the nation and to the Congress the desirability of military preparedness so that our people may successfully resist attempts to substitute other forms of government for the democracy established by the Constitution of our country; and

WHEREAS, Organization of the nation for preparedness involves from the first the complete cooperation of the physicians of the country for:

1. Medical services in the Military, Naval, Aviation and Veteran's administrations;
2. Selection of men physically fit to serve with such agencies; and
3. Rehabilitation of those not physically qualified [to enable them] to participate in military activities; and

WHEREAS, Preparedness demands also

1. Medical service to the industrial workers engaged in war industries;
2. Continuance of medical care of the civilian population;
3. Education of young men to qualify them for medical service; and

WHEREAS, The American Medical Association now embraces in its membership more than 117,000 of the licensed physicians of the United States; and

WHEREAS, The headquarters of the American Medical Association have available facilities as follows:

1. Complete records of all qualified physicians in this country, with data necessary to determine largely their availability for military or other services;
2. Complete information concerning facilities for education in medicine, the medical specialties and other medical activities;
3. Complete information concerning the hospitals of the United States;
4. The necessary facilities for making prompt contact through addressing devices, periodicals and constituent bodies with all medical personnel and medical agencies; and

WHEREAS, Only in the headquarters of the American Medical Association, as far as is known, are such information and facilities available; and

WHEREAS, The American Medical Association is not only the largest but also the only organization containing in its membership qualified physicians in every field of medical practice; and

WHEREAS, During the World War of 1914-1918 the American Medical Association aided in making available the services of more than 60,000 physicians for military and related activities; therefore, be it

Resolved, That the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness, to consist of seven members of this House, with the President of the Association, the Secretary of the Association, the Secretary of the Board of Trustees and the Editor as ex officio members; and be it further

Resolved, That this Committee establish and maintain contact and suitable relationship with all governmental agencies concerned with the prevention of disease and the care of the sick, in both civil and military aspects, so as to make available at the earliest possible moment every facility that the American Medical Association can offer for the health and safety of the American people and the maintenance of American democracy.

Report of Judicial Council

Dr. George Edward Follansbee, Chairman, presented the report of the Judicial Council, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Report of Reference Committee on Credentials

Dr. J. Newton Huusberger, Chairman, stated that the reference committee had received credentials from Dr. W. Albert Cook and Dr. Walter A. Howard for one seat in the House of Delegates and that the committee had seated Dr. Cook. After discussion it was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Olin H. Weaver, Georgia, and carried, that the action of the reference committee in seating Dr. Cook be sustained.

Report of Council on Medical Education and Hospitals

Dr. J. H. Musser, Acting Chairman of the Council, presented the Report of the Council on Medical Education and Hospitals as presented in the Handbook, together with the following

supplementary report dealing with graduate medical schools, which was referred to the Reference Committee on Medical Education:

PRINCIPLES REGARDING GRADUATE MEDICAL SCHOOLS

The following principles, adopted by the House of Delegates in June 1923, have been revised and are submitted to the Council for its consideration.

1. *Organization*.—A graduate medical school should be incorporated as a nonprofit institution. Its board of trustees should be composed of public spirited men or women having no financial interest in the operations of the school or its associated hospitals. The trustees should serve for fairly long and overlapping terms. If the choice of trustees is vested in any other body than the board itself, that should be clearly stated. Officers and faculty of the school should be appointed by the board.

2. *Admission Requirements*.—(a) A physician who does not intend to limit his practice to a specialty shall present satisfactory evidence that he is a graduate of a medical school and that he is licensed to practice in the state in which he resides. (b) The physician who desires to prepare himself to specialize, or who has limited his practice to a specialty, shall present satisfactory evidence that he is a graduate of a medical school approved by the Council on Medical Education and Hospitals and that he has completed at least a one year internship in a hospital approved by the Council, or the equivalent.

3. *Records*.—The graduate school shall maintain (a) a full and accurate record of each student's qualifications, medical degree and licensure, (b) internship or equivalent training, (c) residency or equivalent training, (d) attendance in school, (e) proficiency as appraised by (1) medical contributions, (2) research, (3) membership in county medical society or other scientific bodies, (4) examination, (5) qualifying opinion by student's teachers. In the case of study for specialty, full record of the prescribed course and duration of study with attendance and final estimate of proficiency.

4. *Supervision*.—There should be careful and intelligent supervision of the school by a dean or other executive officer who holds and has sufficient authority to carry out the ideals of present day graduate medical education.

5. *Curriculum and Grading of Instruction Offered*.—The graduate school should have its various courses designed to prepare the physician for the practice of a specialty so graded that the student, if he desires, may follow a progressive and systematic program of two or more years' duration. If at some previous time, or in other institutions, the student has satisfactorily completed certain portions of the work, he may be given credit for the same, with a proportional advanced standing. Institutions offering courses leading to restricted practice in a specialty should provide (a) courses in anatomy, pathology, chemistry and the other basic preclinical sciences which apply to the respective specialties, (b) clinics in which students personally examine patients in hospital wards and outpatient departments and follow these patients throughout their illness, (c) courses of operative and laboratory—cadaver—technic appropriate to each specialty, and (d) for those especially qualified opportunity for research work with proper critical supervisions should be provided.

Short operative courses offered in any of the clinical specialties should include a full review with diagnostic and clinical courses so arranged that they become integral parts of a complete program.

6. *Teachers*.—The graduate medical school should have a faculty well trained in and responsible for instruction in all subjects in which courses for study are announced. Facilities should be provided for essential review and advanced work in the preclinical sciences. The faculty should be organized under competent department heads.

7. *Laboratories*.—The school should possess well equipped laboratories and clinical facilities. The postmortem rate shall be in conformity to the rules for approved hospitals.

8. *Library and Museum Facilities*.—The graduate school should have a medical library under the supervision of a com-

petent librarian and staff. It should include text and reference books, and bound medical periodicals and the essential indexes. For any library, the *QUARTERLY CUMULATIVE INDEX MEDICUS* is essential. It should receive regularly the more important medical periodicals, the latest numbers of which are easily accessible. The school should maintain adequate museum facilities, especially in anatomy and pathology.

9. *Hospitals and Dispensaries.*—The graduate medical school should have control of a teaching hospital with adequate outpatient clinic. It should have sufficient material to enable it to provide satisfactory clinical study in the fields of medicine in which courses are offered, so that students may personally examine patients in the hospital wards and in the dispensary and make the essential laboratory examinations.

10. *Annual Announcements.*—The graduate school should publish an annual announcement and bulletins or catalogues giving detailed information in regard to its courses of instruction, with teachers and details of the laboratories, dispensaries and hospital patients. It should outline the various opportunities for study offered in both fundamental and clinical branches and list those to whom advanced degrees or certificates were granted.

11. *Advanced Degrees and Certificates.*—No advanced degree or certificate should be granted to any one who has not demonstrated by examination or otherwise proficiency in his specialty, nor to any one who has not completed at least one academic year in full time study in the institution granting the certificate.

12. *Financial Support.*—Experience has shown that it is not possible to maintain high educational standards on income from student fees alone. Other sources of financial support are deemed essential for the proper conduct of graduate medical schools and should be listed in the annual announcement.

Report of Council on Scientific Assembly

Dr. James E. Paullin, Chairman, presented the report of the Council on Scientific Assembly, which was referred to the Reference Committee on Sections and Section Work.

Report of Committee to Confer with Governmental Agencies

The Secretary stated that Dr. Irvin Abell, Chairman of the Committee to Confer with Governmental Agencies, had left his report in the hands of the Secretary because he could not be in attendance until Tuesday.

It was suggested that the report be deferred until the Executive Session, and without objection the report was passed until a later meeting of the House.

NEW BUSINESS

Resolutions Susceptible of Misrepresentation to Be Considered in Executive Session

Dr. Walter E. Vest, West Virginia, presented the following resolution, which was adopted on motion of Dr. Vest, seconded by Dr. E. G. Wood, Tennessee, and carried:

WHEREAS, Many problems of a nature critical to the life and work of the American Medical Association now concern us; and

WHEREAS, Such problems as are concerned with public relations efforts, legal difficulties, contraception and the relations of the organized medical profession to the federal administration are susceptible of misrepresentation and misunderstanding in the reflection to the public; therefore be it

Resolved, That all matters of such character be referred by the Speaker of this House of Delegates for consideration in executive session, and that, in conformance with the purpose of this resolution, each delegate who offers a resolution be requested at the outset to state the subject thereof and that the Speaker then rule, before such resolution shall be read, whether or not it be considered in executive session.

Resolutions on Conservation of Eyesight

Dr. James R. McVay, Missouri, presented the following resolutions in behalf of the Missouri State Medical Association, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, The term "conservation of eyesight" carries broader implications than the term "prevention of blindness"; and

WHEREAS, There is need of extending the educational program in the conservation of eyesight throughout the country; and

WHEREAS, The various constituent state medical associations of the American Medical Association should be encouraged to establish committees on the conservation of eyesight; therefore be it

Resolved, That this House of Delegates support and encourage the constituent state medical associations to establish such committees, and that the Board of Trustees of the American Medical Association be requested to appoint a committee to direct this educational program or to instruct the Bureau of Health Education to assume this responsibility based on the facts found and reported by the special committee which was appointed by the Board of Trustees in accordance with the request of the House of Delegates at the 1939 session, for the purpose of studying all phases of the problem of prevention of blindness; and be it further

Resolved, That our delegates be instructed to present this resolution to the House of Delegates of the American Medical Association at the New York session in June 1940.

Proposed Amendment to By-Laws

Dr. James E. Paullin, Section on Practice of Medicine, presented the following amendment to chapter VIII, section 1, of the By-Laws, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

Amend section 1, chapter VIII, of the By-Laws to read as follows:

SECTION 1. MEMBERSHIP.—The Standing Committees, or Councils, including the Judicial Council and the Council on Scientific Assembly, shall consist of five members, each elected for five year terms. The Council on Medical Education and Hospitals shall consist of seven members, each elected for seven years. The terms of office of the members of each council shall terminate in succession, one each year, and, except in the case of the Council on Medical Education and Hospitals, the House of Delegates shall, on the nomination of the President, elect one member each year to fill the vacancy. With respect to the Council on Medical Education and Hospitals, one member shall be elected annually by the House of Delegates on the nomination of the Board of Trustees. The members of the Council on Scientific Assembly shall be chosen, as far as practical, from ex-section officers representing different sections. The President-Elect, the Secretary of the Association and the Editor of THE JOURNAL shall be ex officio members of the Council on Scientific Assembly.

Procurement of Professional Personnel for Medical Corps of Army in Event of a National Emergency

Dr. George C. Dunham, United States Army, presented the following plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency, which was referred to the Reference Committee on Executive Session:

The following is a tentative plan for the procurement of professional personnel for the Medical Corps of the Army in the event of a national emergency. This plan has been prepared by the office of the Surgeon General of the Army and is submitted to the House of Delegates of the American Medical Association for its consideration.

1. The American Medical Association to be asked to conduct a survey of the medical profession through its state and local activities.

2. The local or county societies to canvass their members to determine of those who express a willingness to serve who should be available for the military service and who, on account of their age, physical disability or commitment in civil capacities, should remain at home.

3. The county society to give to each one who expresses his willingness to serve, even though he may be selected to remain at home, a button similar to that which was designed for the Volunteer Medical Service Corps during the last war.

4. The county societies to list those who are selected for the military service according to their professional qualifications, listing as surgeons, psychiatrists and so on only those who are members in the national specialists' organizations. Also to select from those who are to remain at home qualified men for examining boards.

5. The state societies to maintain an available roster of their members.

6. The American Medical Association to maintain a numerical roster of availability by states.

7. The Medical Department of the Army to have one or more selected officers on duty at the headquarters of the American Medical Association in Chicago.

8. The War Department, Corps Areas or regional officers to call on the American Medical Association for physicians or specialists, as and when required.

9. The American Medical Association to call on the states, according to their quotas, for the physicians required.

10. The states, in turn, to call on their local societies for their quota of physicians.

In the quotas, credits would be given for sponsored units and preference would be given to reserve officers wherever their qualifications warrant.

It appears that in the event of a national emergency of great magnitude it would be very necessary to conserve the medical profession. This plan would distribute the professional load and, if properly administered, should prevent the stripping of rural and isolated communities of their necessary medical personnel.

There could be an extension of this plan to cover the training program for technicians. The same societies could conduct a survey of the teaching institutions to determine their availability and suitability for the training of such enlisted specialists as would be required. Rational medical service for civilian groups in war industries could be coordinated by the same administrative units.

Resolutions on Venereal Disease Program

Dr. J. N. Baker, Alabama, presented the following resolutions, which were referred to the Reference Committee on Hygiene and Public Health:

WHEREAS, An expanded program for the control of the venereal diseases throughout the states has been made possible by federal grants-in-aid to states to be used specifically for this purpose; and

WHEREAS, On state health departments has been placed the responsibility for the judicious and wise expenditure of such funds; and

WHEREAS, The organized medical profession of this country has likewise a responsibility in this particular problem, as it has in all other health problems affecting the nation; and

WHEREAS, Because of the magnitude and scope of any nationwide program looking to the control of the venereal diseases, the House of Delegates of the American Medical Association recognizes the need for the fullest cooperation, aid and counsel from the practicing profession; and

WHEREAS, The proper control of these diseases depends on adequate, continued treatment; and

WHEREAS, The treatment of the sick individual is the province of the practicing physician; and

WHEREAS, The modern technics employed in the treatment of the venereal diseases require a familiarity with such technics as well as a knowledge of the diseases themselves; therefore be it

Resolved, That it is the sense of this House of Delegates that such cooperation on the part of the medical profession should be freely extended and that the official health agencies, state and local, charged with the administrative responsibilities for the conduct of the program be urged to formulate plans and machinery for as full utilization as possible of such members of the local medical profession as are willing and competent to undertake the clinical management of such programs; and be it further

Resolved, That it is the sense of this House of Delegates that constituent state medical associations and component county medical societies should cooperate fully in the effort to improve the quality of clinical services to be rendered in venereal disease control programs; and be it further

Resolved, That it is the sense of this House of Delegates that a reasonable compensation should be paid physicians serving in the venereal disease clinics; and be it further

Resolved, That it is the sense of this House of Delegates that, because of the potential dangers of intravenous therapy, such medication should be administered only by a duly qualified physician.

Resolution on Military Service by Women Physicians

Dr. Samuel J. Kopetzky, New York, presented the following resolution from the American Medical Women's Association, Inc., as well as a similar resolution from the Women's Medical Association of New York City, which was referred to the Reference Committee on Miscellaneous Business:

The American Medical Women's Association, Inc., now in session at the Park Lane Hotel, respectfully requests the House of Delegates of the American Medical Association actively to consider the question of providing for its women physician members in the event of war and to approach the War Department, or proper authorities, in order to secure proper military recognition and commissions for women physicians and surgeons, so that in giving their all to their country they may be assured of the same rating and benefits of government protection that their brother colleagues enjoy.

Resolution on Legislation Having to Do with the Care of the Sick

Dr. John Z. Brown, Utah, presented the following resolutions, which were referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the Utah State Medical Association, having heard of the recent vote of the House of Delegates of the American Medical Association on the subject of state medicine, extends a vote of support to the officers and delegates of that Association on the principle involved; and be it further

Resolved, That it is the sense of the Utah State Medical Association that it is not incompatible with the principles of the American Medical Association to have that organization formulate and propose to the appropriate government agencies some plan whereby the proper governmental agency will compensate adequately the family physician for the care and treatment of patients in the low income brackets who are unable to pay for medical and hospital services; and be it further

Resolved, That nothing in this resolution shall be construed as suggesting or recommending any plan whereby the free choice of physician or hospital by the patient shall be jeopardized; and be it further

Resolved, That it is the sense of this Association that any plan adopted should be administered by a doctor of medicine who is trained in the diagnosis and treatment of disease and not under the supervision of a public health officer, whose special training is directed toward the prevention rather than the treatment of disease; and be it further

Resolved, That the Utah delegate to the 1940 session of the American Medical Association exert every effort to have some plan prepared and presented to the appropriate governmental agencies with a view to carrying out the intent and purpose of this resolution.

Resolution on Doctor's Day

Dr. Harvey F. Garrison, Mississippi, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, Senator Theodore G. Bilbo of the state of Mississippi introduced into the United States Senate the following resolution declaring June 22 a day to be known as "Doctor's Day," on which the public may officially recognize the services rendered by the medical profession to the people: "Resolved, etc., That the 22d day of June in each year is hereby designated, and shall hereafter be known as, Doctor's Day in commemoration of the great sacrifices and untiring efforts and devotion of the members of the medical profession in performing their duty to humanity by caring for the sick and injured in times of individual need and during periods of pestilence, war and other disasters and catastrophes. Sec. 2. The President is authorized and requested to issue annually a proclamation calling upon officials of the Government to display the United States flag on such day and inviting the people of the United States to observe such day in an appropriate manner," and

WHEREAS, This resolution was unanimously passed by the United States Senate; therefore be it

Resolved, That the House of Delegates of the American Medical Association express to the United States Senate and to Senator Bilbo its deep appreciation of this recognition.

Resolutions on Care of Needy Physicians

Dr. Charles A. Dukes, California, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The care of physicians who are in need is a subject worthy of the attention of the constituted units of organized medicine; and

WHEREAS, A serious study and survey of this problem is definitely indicated; now be it

Resolved, By this House of Delegates of the American Medical Association that the speaker of the House of Delegates be instructed to appoint a committee of three to make a study of the problem of (1) Aid to needy members of this Association and (2) Establishment of a national fund for this purpose, and to submit a report of this study with recommendations at the next annual session of the House of Delegates; and be it further

Resolved, That the committee so appointed be empowered to appoint a subcommittee of three from members of each constituent state medical association to carry on similar studies in their respective states and to report thereon through the committee of the American Medical Association.

Resolution on Blood Typing for Blood Transfusion

Dr. T. K. Gruber, Michigan, in behalf of the Michigan State Medical Society, presented the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The value of blood transfusion in the treatment of a wide variety of disabilities is firmly established; and

WHEREAS, The usefulness of this procedure in emergencies is totally dependent on the ready availability of suitable donors; therefore be it

Resolved, That the American Medical Association and its constituent state and component county organizations formulate a plan that may be linked with the present day project of blood testing for syphilis, for widespread blood typing and classification of the general public so that suitable donors shall be available at all times in every community throughout the United States.

Resolutions on Specialists in Hospitals

Dr. Thomas A. McGoldrick, New York, presented the following resolutions, which were referred to the Reference Committee on Medical Education:

These resolutions were approved by the Medical Society of the State of New York at its 1940 annual meeting. It was there ordered that they be presented to the American Medical Association at its 1940 annual session for consideration.

ORGANIZATION SECTION

JOUR. A.
JUNE 22,

Resolved, That in order better to serve the hospitals with which they are connected and to improve that service by greater cooperation and understanding, the Joint Council of Pathologists, Radiologists, Anesthesiologists and Physical Therapy Physicians of New York state recommends that all grade A hospitals shall have physicians especially trained in pathology, radiology, anesthesiology and physical medicine in charge of these departments, and that the directors of these departments shall be members of their respective medical boards with the power to vote; and be it

Resolved, That in those areas in which the foregoing specialties are not represented by specialists it shall be permissible for physicians trained in these specialties to represent the specialty on their respective medical boards.

Resolutions on Limiting Type and Extent of Services Offered by Laboratories of State Boards of Health

Dr. L. W. Larson, Section on Pathology and Physiology, presented the following resolutions, which were referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The continued growth and development of that special branch of medicine known as clinical pathology is necessary for the proper diagnosis and treatment of the sick and is essential to the science and practice of medicine; and

WHEREAS, The growth of laboratories of state boards of health has been abnormally augmented by grants-in-aid from the federal government, the effect of which is to extend these services to all citizens without regard to their ability to pay; and

WHEREAS, The excessive development of laboratory medicine by state boards of health serves as an entering wedge for state medical practice which apparently will include all medical specialties; and

WHEREAS, These practices will inevitably result in the curtailment of the practice of clinical pathology and tend to discourage young, well trained physicians from entering this essential field; be it therefore

Resolved, That the House of Delegates recommend to all state medical societies that they hold conferences with the authorities of their state boards of health with the view of limiting the type and extent of services offered by the laboratories of these organizations. Laboratory services made by health officers and to those made by physicians whose patients find it difficult or impossible to pay the cost of laboratory services of this kind in the customary manner. In general, laboratories of the state boards of health should not provide services at taxpayers' expense to persons who are able to provide for themselves; and be it further

Resolved, That the House of Delegates authorize the Board of Trustees of the American Medical Association to undertake an educational campaign to set forth this problem to the medical profession.

Resolution on Approval of the American Foundation for Tropical Medicine, Inc.

Dr. Peter Irving, New York, presented the following resolution, which was referred to the Reference Committee on Medical Education:

WHEREAS, Tropical medicine has attracted increasing attention in the United States; and

WHEREAS, in 1934 there was created an organization known as the American Academy of Tropical Medicine; and

WHEREAS, Following that event there was organized the American Foundation for Tropical Medicine, Inc., which has elaborated a plan for the introduction of graduate students in tropical medicine from South and Central America to study in the Graduate School of Tropical Medicine at the Tulane University of Louisiana and other appropriate universities in the United States for the improvement of health in the Western Hemisphere and the interchange of cultural assets; and

WHEREAS, The American College of Physicians has voted its approval of this foundation; therefore be it

Resolved, That the American Medical Association register its formal approval of the American Foundation for Tropical Medicine, Inc.

Resolution on Military Activities

Dr. George R. Dillinger, Indiana, presented a resolution on Military Activities, which was referred without reading to the Reference Committee on Executive Session.

Resolution on Medical Service Plans

Dr. L. G. Christian, Michigan, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

WHEREAS, Medical societies in more than eighteen states have medical service plans in operation or in an advanced stage of development; and

WHEREAS, It is of the utmost importance that organized medicine maintain a close and sympathetic interest in the administration and policies of medical service plans; and

WHEREAS, There is need for uniformity in the standards of such plans and in the methods of collecting actuarial data; and

WHEREAS, There are indications, if medical service plans do not have the benefit of coordinated leadership, that agencies other than medical may assume the direction of such plans; therefore be it

Resolved, That the House of Delegates of the American Medical Association request the Board of Trustees to direct the Bureau of Medical

Economics and the Committee on Medical Care to take appropriate toward the coordination of medical service plans and to arrange the collection of information and experience that may be useful in developing and maintaining sound practices.

Address of Surgeon General James C. Magee

Dr. Arthur W. Booth, Chairman of the Board of Trustees presented Dr. James C. Magee, Surgeon General of the United States Army, who addressed the House as follows:

Mr. Chairman and Gentlemen:

I am not in any sense prepared to make a speech. I had not expected to stand here at all. On this sudden and pressing invitation, I will have to impose on you for a moment.

I realize the significance and great importance of this meeting, particularly in reference to the thought that pervades the minds of all of us with reference to the disturbed state of world affairs.

Representatives of my office have already made some proposals, I understand, to the House of Delegates. As Surgeon General of the Army, I know that in the event of actual mobilization and the necessity for military effort on the part of our country, this is the organization on which we must rely for support when the occasion demands.

This is my first appearance before the House of Delegates. I am exceedingly glad to be here and I hope to be on close terms with a great many of you as time goes on.

Report of Board of Trustees

Dr. Arthur W. Booth, Chairman of the Board of Trustees, read the following Report of the Bureau of Medical Economics on fee schedules, which was referred to the Reference Committee on Miscellaneous Business:

The Bureau of Medical Economics has studied the fee schedules reported by county medical societies and submits the following report, as requested by the House of Delegates at the San Francisco session in 1938:

Special purposes often require the adoption of fee schedules in connection with the administration of medical care. Under such circumstances fee schedules do not violate the Principles of Medical Ethics.

When it becomes necessary to adopt fee schedules, the purpose for which such schedules are designed, the body which is to pay for the services, the ability of patients to pay, the length of time over which the schedules are to remain effective, the economic conditions in the area involved and the nature of the medical services to be provided must be considered in arriving at the values to be ascribed to the schedule items.

Ordinarily, fee schedules should provide for sufficient elasticity to permit their adaption to wage levels, specialized services and variations in the costs of providing medical care in urban and rural districts.

The adoption of fee schedules is the function of component units, with the advice and assistance, if desired, of the state medical societies of which they are a part.

Resolution on Military Status of and Pay to Physical Therapy Technicians

Dr. Rollo K. Packard, Illinois, presented the following resolution, which was referred to the Reference Committee on Legislation and Public Relations:

Resolved, That the American Medical Association express its approval of Senate Bill 1615, introduced by Senator Sheppard, chairman of the Senate Military Affairs Committee, and House Bill 8542, introduced by Mr. May, chairman of the House Military Affairs Committee. These bills give the same military status and pay to the physical therapy technicians who are now in the Army or who will come into the Army during an emergency as the Army nurses now have.

Resolution Concerning Certain Objectionable Practices of Insurance Companies

Dr. John H. Fitzgibbon, Oregon, presented a resolution concerning certain objectionable practices of insurance companies, which was referred without reading to the Reference Committee on Executive Session.

On motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by various delegates and carried, the House recessed at 2:10 p. m., to reconvene at 9:30 a. m. Tuesday, June 11.

(To be continued)

MEDICAL LEGISLATION

MEDICAL BILLS IN CONGRESS

Changes in Status.—H. R. 9209, the Military Establishment Appropriation Bill for the fiscal year of 1941, as passed by the House and Senate, carries an appropriation of \$130,000 for the preparation of plans for a new building in which to house the Surgeon General's Library. On June 10, when the conference report on the bill was before the House, Representative Collins, Mississippi, sought to amend the bill so as to make available an additional sum of \$470,000 for the acquisition of a site for the building. This amendment was rejected on a point of order. A subcommittee of the Senate Committee on Education and Labor recently concluded hearings on S. 3461, a bill introduced by Senator Murray, Montana, proposing to provide for the general welfare by enabling the several states to make more adequate provisions for the control and prevention of industrial conditions hazardous to the health of employees. The bill designates the Department of Labor as the administrative agency. On June 13 the committee discussed the bill but took no action with respect to it. H. J. Res. 551 has been signed by the President, making effective as of June 30 Reorganization Plan No. IV, transferring to the Federal Security Agency the Food and Drug Administration, except those functions relating to the administration of the Insecticide Act of 1910 and the Naval Stores Act, which will remain in the Department of Agriculture.

DISTRICT OF COLUMBIA

Changes in Status.—S. 2013 has passed the Senate and House, proposing to amend the Code of the District of Columbia to provide for the organization and regulation of cooperative associations. S. 3720 has been reported to the Senate, with amendments, creating a Board of Funeral Directors and Embalmers. H. R. 7865 has been reported to the Senate, proposing to amend the laws regulating the practice of dentistry.

H. R. 8692 has been reported to the Senate, proposing to amend existing laws regulating the practice of podiatry in the District of Columbia.

STATE MEDICAL LEGISLATION

Louisiana

Bills Introduced.—H. 934 proposes to prohibit the retail sale or distribution, except on the written order of a physician, dentist or veterinarian, of amytal, luminal, veronal, barbital, acid diethylbarbituric, paraminobenzene sulfonamide, sulfanilamide, sulfamide, prontylin, prontosil, neo-prontosil, neo-prontylin, sulfamethylthiazole, dinitrophenol, edimalin, sulfonamid, cincophen, thyroïd, aminopyrine or any of their salts or derivatives, or compounds of the foregoing substances, or any preparation or compound containing any of the foregoing substances, or their salts, derivatives or compounds, or any registered, trade-marked or copyrighted preparation or compound registered in the United States patent office containing more than 1 grain to the avoirdupois or fluid ounce of the above substances. H. 508 proposes to require every physician who attends a woman for conditions relating to pregnancy to offer to take or have taken a sample of her blood at the time of first examination, if no objection is made thereto by the woman, and to submit such sample to an approved laboratory for a standard test for syphilis. The bill proposes that a standard test for syphilis be a test approved by the American Board of Pathology and must be made by a laboratory operated by a licensed physician and pathologist as recognized by the American Board of Pathology. All persons other than physicians permitted by law to attend pregnant women but not permitted to take blood samples are to be required to cause a sample of blood of the woman to be taken by a licensed physician, if no objection is made thereto by such woman, and submitted to an approved laboratory for a standard test for syphilis.

WOMAN'S AUXILIARY

Michigan

A joint meeting of the Gratiot-Isabella-Claire County Medical Society and its auxiliary was held in Alma recently with ninety persons in attendance. Mr. William J. Burns, executive secretary of the Michigan State Medical Society, spoke on "Opportunities for the Doctor's Wife."

Dr. Nathan Sinai, of the University of Michigan, spoke on "Highways and Horizons of Medicine in This Changing World" at a recent meeting of the auxiliary to the Wayne County Medical Society in Detroit. Drs. J. Milton Robb and Edward D. Spalding spoke on the Wagner Health Bill at the December meeting.

Minnesota

More than 10,000 papers on the subject "Youth's Health Security" were written by Minnesota High School students in the Christmas Seal High School Radio project which is conducted under the auspices of the Minnesota Public Health Association and the Woman's Auxiliary of the Minnesota State Medical Association. A total of 102 talks, selected from the 10,000, were submitted in the state contest. Writers of six papers, selected from the 102 entries, presented them over radio station WCCO.

The auxiliary to the Clay-Becker Counties Medical Society sponsored a sale of articles made by the patients at Sand Beach Sanatorium recently. The sum of \$78.85 was made for the patients. The auxiliary has placed *Hygeia* in all public libraries of the county. Dr. W. L. Burnap spoke on the Wagner Bill at the joint meeting of the Red River Valley Medical Society and the woman's auxiliary in Crookston recently.

New Jersey

The auxiliary to the Atlantic County Medical Society met in Atlantic City January 12. Dr. Harold Davidson spoke on cancer. At an open meeting at the Woman's Club, January 16, Dr. Harold Davidson spoke on cancer and Mrs. A. Haines Lippincott, of Camden, spoke on the Woman's Field Army of the American Society for the Control of Cancer.

The auxiliary to the Camden County Medical Society met in Woodbury January 16. Miss Jane C. MacNeal, director of social service of the Pennsylvania Hospital, Philadelphia, and Rev. Robert D. Morris, supervisor of the theological service of the Pennsylvania Hospital, spoke on "Medical Social Work."

The auxiliary to the Union County Medical Society met in Rahway January 16. Dr. Elizabeth Ford Love spoke on child behavior problems.

The board of directors of the auxiliary to the Medical Society of New Jersey met in Trenton January 8. Dr. Hammel Shipps reviewed recent progress in medicine and Dr. Thomas K. Lewis discussed state medicine.

New York

The auxiliary to the Cayuga County Medical Society met in Auburn January 18. Dr. George B. Adams discussed public health work in the county.

The auxiliary to the Kings County Medical Society held its January meeting in Brooklyn. Dr. George Merrill spoke on "Allergy"; an article from *Hygeia* was reviewed and plans were made for securing funds for the Physicians' Home.

Dr. Raymond Graham spoke on "The History of Medicine in Onondaga County" at a recent meeting of the auxiliary to the county medical society in Syracuse.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

DISTRICT OF COLUMBIA

Mr. Cummings Endows Research on Heart Disease.—Hoimer S. Cummings, LL.D., formerly attorney general of the United States, has given \$1,200 for five years to George Washington University, beginning in July, to establish a research clinic for the treatment of heart disease. The gift is to be known as the Cecilia Cummings Research Fund in honor of Mr. Cummings' wife who died from a heart disease in August 1939. It will be under the supervision of Dr. Paul F. Dickens, clinical professor of medicine, George Washington University School of Medicine, Washington.

IDAHO

Society News.—A recent meeting of the North Idaho District Medical Society at Lewiston was addressed by Drs. Richard J. Bailey and William N. Myhre, Spokane, Wash., on "Recent Advances in Treatment of Common Skin Diseases" and "Treatment of Heart Disease" respectively.—The annual spring meeting of the Southwestern Idaho District Medical Society in Boise, April 17-18, was addressed by Drs. Howard C. Stearns on endometriosis; Joyle Dahl, treatment of syphilis, and Morris L. Bridgman, pediatrics. Clinics on pediatrics, dermatology, obstetrics and gynecology formed a part of the session. The speakers are members of the faculty of the University of Oregon Medical School, Portland. The program was under the auspices of the state division of public health.

ILLINOIS

County Society Celebrates Anniversary.—The Pike-Calhoun County Medical Society celebrated the fortieth anniversary of its founding at a meeting in Pittsfield, April 19. Dr. James H. Hutton, Chicago, spoke on "The People, the Physicians and the Politicians" and Dr. Harold M. Camp, Monmouth, "Medicine Accepts the Challenge." A symposium on the treatment of peptic ulcer was presented by Drs. Thomas D. Masters, Robert J. Patton and Charles L. Patton, Springfield.

Chicago

The New Wesley Hospital.—Ceremonies marking the laying of the cornerstone of the new Wesley Memorial Hospital were held May 26. Franklyn Bliss Snyder, LL.D., president of Northwestern University, and Dr. Raymond W. McNealy, chief of staff of the hospital, were among the speakers. The hospital is planned as the first unit in a group of buildings to be known as the George Herbert Jones Hospital Center. Mr. Jones, founder and former president of the Inland Steel Company, in 1937 gave about \$2,000,000 in stock to finance the new hospital. In February of this year he gave additional shares of stock valued at more than \$1,000,000. The site is at Fairbanks Court and Superior Street, adjacent to the campus of Northwestern University. The building will be twenty stories high with a capacity of 525 beds. While it will have facilities for charity patients, the accommodations are designed for persons of moderate means. The new Wesley Memorial Hospital is affiliated with Northwestern University Medical School.

KANSAS

Personal.—Dr. Ralph M. Fellows has announced his resignation as superintendent of the state hospital at Osawatimie, effective May 30. He has accepted a position in the Milwaukee County Hospital for Mental Diseases, Wauwatosa, the state journal reported.—Drs. Mirl C. Ruble, Parsons, and Henry E. Haskins, Kingman, have been reappointed to the Kansas State Board of Medical Registration and Examination.

Society News.—Dr. George F. Gesell, Wichita, recently discussed "Evaluation of Ocular Discomfort" before the Cowley County Medical Society in Winfield.—The Montgomery County Medical Society was addressed in Coffeyville, April 19, by Dr. Wilson A. Myers, Kansas City, Mo., on "Heredity and Transmission of Familial Diseases."—The Wyandotte County Medical Society was addressed in Kansas City, May 21, by Drs. Harry W. King on "Acute Cholecystitis and Anomalies of the Bile Passages" and John H. Luke, "Chemotherapy."

Dr. Logan Clendening, Kansas City, Mo., discussed "Medical Literature and the Modern Practice of Medicine" before the society, May 7. The society was addressed, April 16, by Drs. Clarence A. Gripkey, Kansas City, on "Treatment of Thyroiditis"; Lewis G. Allen, Kansas City, "When Is a Colles' Fracture Reduced"; Mahlon H. Delp, Kansas City, Mo., "Treatment of Coronary Occlusion," and Oscar W. Davidson, Kansas City, "Urologic Treatment of Hypertension."—A symposium on carcinoma of the stomach was presented before the Shawnee County Medical Society in Topeka, May 6, by Drs. Floyd C. Taggart, Arthur K. Owen and William M. Mills.

MASSACHUSETTS

State Medical Election.—Dr. Walter G. Phippen, Salem, was reelected president of the Massachusetts Medical Society at its recent annual meeting in Boston. Dr. Alexander S. Begg and Charles S. Butler, Boston, were reelected secretary and treasurer, respectively. Dr. Frank R. Ober, Boston, was elected vice president.

Charity to Correct Speech Defects.—The Institute for Speech Correction, Inc., has recently been organized to give instruction in overcoming stammering, lisping and other speech defects exactly at cost. It has taken over the Boston Stammerers' Institute, which according to the *New England Journal of Medicine* was the oldest school of its kind in America, having been founded in 1867. Arrangements have been made with Emerson College whereby adequately supervised advanced students in speech pathology will instruct without charge any pupil at the institution who, on recommendation of his family physician, cannot pay for his lessons. Samuel D. Robbins, permanent secretary of the American Speech Correction Association and professor of psychology at Emerson College, has been elected managing trustee. He was for twenty-five years director of the Boston Stammerers' Institute.

New School of Dental Medicine at Harvard.—Harvard University will inaugurate in 1941 an entirely new five year course in dental education, it was announced June 16. The course, which will combine the basic knowledge and skills of both medicine and dentistry, is designed to train new types of scientific workers for the attack on dental disease. The new development has been made possible by the gift of \$650,000 from the Carnegie Corporation, \$400,000 from the Rockefeller Foundation and \$250,000 from the John and Mary R. Markle Foundation. A balance of \$250,000 bringing the total to \$1,550,000 is required to fulfil the program. The president and fellows of Harvard College have also transferred to the resources of the school of dental medicine \$1,000,000 tentatively placed at the disposal of the dental school ten years ago. The dental school will be renamed the Harvard School of Dental Medicine. Dental students will register in both the school of dental medicine and in the Harvard Medical School, taking three and one half years of the same medical courses as other students in the Harvard Medical School and in addition one and one half years of specific dental training. Graduates will receive both the M.D. and D.M.D. degrees. Admissions to the school of dental medicine will be governed by the same standards and the same committee which govern admissions to the Harvard Medical School. The last class to enter the present four year dental curriculum at Harvard will be admitted this coming September and the new program will go into operation in the fall of 1941. Harvard, the first university in America to establish a dental school, thus becomes the first university to institute this particular plan in the development of dental and medical education.

MICHIGAN

Annual Fracture Day.—The second annual fracture day, sponsored by the Flint regional fracture committee, was held at Hurley Hospital, Flint, May 15. The speakers were:

Dr. Hardie B. Elliott Jr., Head Injuries.
Dr. James A. Spencer, Management of Burns.
Dr. Myron W. Clift, Pathologic Fractures.
Dr. Leon M. Bogart, Emergency Treatment of Fractures.
Frederick C. Thorold, D.D.S., Fractures of the Jaw.
Dr. George J. Curry, Management of Long Bone Fractures.
Dr. Donald R. Brasie, Care of Traction Apparatus.
Dr. Harold W. Woughter, Carpal Bone Fractures.

MINNESOTA

Clarence M. Jackson Lecture.—Dr. Walter C. Alvarez, Rochester, delivered the seventh annual Clarence M. Jackson lecture, April 26, at the University of Minnesota. His subject was "Functional Gastro-Intestinal Disturbances." The lecture was sponsored by the Minnesota chapter of Phi Beta Pi Medical Fraternity.

Personal.—A special program was offered by the Luverne Rotary Club, April 1, to mark the fiftieth anniversary of Dr. Charles O. Wright in the practice of medicine.—Dr. Bernard H. Simons has been named health officer of Chaska.—Dr. Bernard A. Watson has resigned as head of the student health service at the University of Minnesota, Minneapolis, to join the staff of the Battle Creek Sanatorium, Battle Creek, Mich.

Abortionist Sentenced.—Mrs. Della Mostert, aged 60, was sentenced to a term of from two to eight years at hard labor in the Women's Reformatory at Shakopee, following her plea of guilty to an information charging her with the crime of abortion. The statutory penalty for criminal abortion is not to exceed four years, but the sentence in this case was doubled because of a previous conviction in 1936 for a similar offense. The recent investigation disclosed that Mrs. Mostert had performed an abortion on a 14 year old Negro girl, May 8.

NEW YORK

Society News.—Dr. Paul W. Beaven, Rochester, recently addressed the Chautauqua County Medical Society in Fredonia on "Abdominal Pains in Children."—Dr. George Douglas L. Taylor, Montreal, addressed the Franklin County Medical Society in April on "Arthritis and Rheumatism, Diagnosis and Treatment."—Drs. Samuel A. Thompson and Milton J. Raisdeck, New York, addressed the Schenectady County Medical Society in Schenectady recently on "Surgical Treatment of Coronary Artery Disease with Special Reference to Cardiopercardiopexy" and "Selection and Postoperative Management of Patients in the Surgical Treatment of Coronary Disease" respectively.—Dr. Harry L. Segal, Rochester, addressed the Wayne County Medical Society, Lyons, in April on "Management of Bleeding Ulcers."

Medal for Service to Community.—Dr. John R. Williams has been awarded the Albert David Kaiser Medal of the Rochester Academy of Science "for service to the community and to the medical profession." The citation stated that Dr. Williams "has been the leading spirit, guide and director in the establishment of the Medical Museum in the Rochester Academy of Medicine, which from its beginning has maintained a high standard of educational value for the medical profession and the public. This museum, a new department of academy activity, has already brought into active participation a large number of the medical profession who formerly had no opportunity to take part, as individuals, in the problems of education which face the medical profession." Dr. Williams graduated at the University of Michigan Medical School, Ann Arbor, in 1903.

Typhoid Carrier for Forty-Nine Years.—The New York State Department of Health reported, May 12, the case of a typhoid carrier, "Typhoid Sally," who, according to *Health News*, has been a carrier for forty-nine years. The condition of the woman, a cook, was discovered in 1925 when health officers investigated an outbreak of typhoid in a hotel where "Sally," aged 57, was working in the kitchen. Her case history disclosed that when she was 23 years of age she suffered a severe illness which was treated as malaria but which physicians later believed to be typhoid. A few years later the woman was found on a dairy farm when her husband complained to the health department of "a typhoid scare" and asked to have milk from his farm tested. "Sally" was cautioned against the handling of milk as well as of food. In 1928, health authorities investigated another case of typhoid and learned that "Sally" had been preparing food again. By 1939 eleven cases were traced to her and she subsequently was convicted of a violation of the state sanitary code and was fined \$25.

Dr. Corner Receives First Squibb Award.—Dr. George W. Corner, professor of anatomy and curator of the medical library, University of Rochester School of Medicine, was presented at a dinner June 10 with the first E. R. Squibb & Sons Award for his contributions to endocrinology. The award is the sum of \$1,000 and a scroll provided by the association. Dr. Corner was recently appointed director of the embryologic laboratory of the Carnegie Institution. He will begin his new work in Baltimore July 1. Speakers at the dinner when the prize was presented included Philip E. Smith, Ph.D., professor of anatomy, Columbia University College of Physicians and Surgeons, New York, and Dr. Elmer L. Sevringhaus, professor of medicine, University of Wisconsin Medical School, Madison, chairman of the committee which drew up the regulations for the award. Dr. Corner first worked out the relation of the corpus luteum to the sex cycle in detail in the mammal (sow). He later showed that corpus luteum extract in the ovariectomized rabbit could cause progestational (premenstrual) development of the uterus and maintain pregnancy. His early experiments with Dr. Willard M. Allen led to the isolation of pure corpus luteum

hormone (progesterone). In 1923 he showed by studies on the monkey that menstruation could occur without ovulation. He was the first to show that estrogens may delay the menstrual cycle.

New York City

Professors Appointed.—Dr. Wesley C. Bowers, director of the ear, nose and throat department of St. Luke's Hospital, has been named clinical professor of otolaryngology at Columbia University College of Physicians and Surgeons and Nicholas Kopeloff, Ph.D., research bacteriologist at the New York State Psychiatric Institute, has been appointed assistant professor of bacteriology. Dr. Bowers graduated from Columbia in 1908 and Dr. Kopeloff took his Ph.D. degree at Rutgers University in 1917.

Degree of Doctor of Public Health.—The degree of doctor of public health has been established at the DeLamar Institute of Public Health, Columbia University College of Physicians and Surgeons, to meet the demand for specialized training in the field. According to *Science*, the large expansion of public health activities and the increase in federal, state and local appropriations for such programs are creating many new positions which call for specialized education of a high order. The degree has been introduced at Columbia as part of the program of the institute to supply qualified physicians to fill these posts. Students who wish to matriculate for the degree must be graduates of an approved medical school and have served an internship of at least one year in a recognized hospital. The program of studies for the degree includes two years of graduate work, one of which must be spent at the institute. If the student chooses, permission may be granted to do one year of field work in some locality other than New York.

Dr. Wood Made Director Emeritus.—Dr. Francis Carter Wood has been made director emeritus of the Institute of Cancer Research at Columbia University College of Physicians and Surgeons. He will continue in private practice. It was also announced that the institute has been converted into the department of cancer research of the medical school, with Dr. William H. Woglom, associate professor of cancer research, as acting executive officer of the department. Dr. Wood, an Ohioan, graduated at Columbia in 1894 and has been a member of its teaching staff since 1896, becoming professor and director of the Institute of Cancer Research in 1912. Dr. Woglom was born in Brooklyn and received his degree in medicine at Columbia in 1901. He was associated with the city department of health, 1908-1909; served as assistant to the director, Imperial Cancer Research Fund, London, England, 1911-1912, and assistant professor of cancer research at the Columbia institute from 1912 to 1917, when he was made associate professor of cancer research at the medical school.

Dr. Goldwater President of Associated Hospital Service.—Dr. Sigismund S. Goldwater has accepted the presidency of Associated Hospital Service of New York, sponsor of the "three cents a day" plan. He will continue to serve as commissioner of hospitals of the city until relieved by the mayor. Mr. David H. McAlpin Pyle, chairman of the board and vice president of Associated Hospital Service, has been acting as president. He will continue as chairman of the board. The service is a nonprofit organization and now has more than a million and a quarter subscribers in seventeen counties in New York State, including the metropolitan area. The "three cents a day" plan was organized five years ago. Dr. Goldwater graduated at University and Bellevue Hospital Medical College, New York, in 1901. He served as superintendent of Mount Sinai Hospital from 1903 to 1916 and as a director from 1917 to 1929. He was commissioner of health of the city of New York in 1914 and 1915, becoming consultant in health and hospital administration to the board of estimate in 1916 and commissioner of the department of hospitals in 1934. Dr. Goldwater was president of the American Hospital Association in 1908 and of the American Conference of Hospital Service from 1924 to 1926.

OHIO

State Medical Election.—Dr. Harry V. Paryzek, Cleveland, was chosen president-elect of the Ohio State Medical Association at its annual session in Cincinnati, May 14-16, and Dr. William M. Skipp, Youngstown, was installed as president.

Society News.—Dr. John D. Garvin, Pittsburgh, addressed the Summit County Medical Society, Akron, May 7, on "Changing Concepts of Peptic Ulcer."—Dr. John M. Sheldon, Ann Arbor, Mich., addressed the Academy of Medicine of Toledo and Lucas County, May 10, on "Common Allergic Manifestations and Their Treatment." Dr. Samuel J. Levin, Detroit,

addressed the academy, May 17, on "Allergic Dermatoses." Dr. Raymond H. Quade, Toledo, was the speaker, May 24, on "Role of Surgery in Treatment of Hypertension."—Clarence C. Little, Sc.D., Bar Harbor, Maine, addressed the Academy of Medicine of Cleveland, May 17, on "Recent Advances in Cancer Research." The academy held an art and hobby exhibit at this meeting.—Dr. Morris Edward Davis, Chicago, addressed the Montgomery County Medical Society, Dayton, May 17, on "Diagnosis and Treatment in Bleeding Latent Pregnancy."

OKLAHOMA

State Medical Election.—Dr. Finis W. Ewing, Muskogee, was named president-elect of the Oklahoma State Medical Association at its forty-eighth annual session in Tulsa, May 6-8. Dr. Henry H. Turner, Oklahoma City, was installed as president. Dr. William A. Tolleson, Eufaula, was elected vice president.

Physician Honored.—On the fiftieth anniversary of his graduation from medical school, Dr. Joseph S. Fulton, Atoka, was recently honored in a ceremony in McAlester as a part of the meeting of the South Eastern Medical Society. Dr. Fulton was presented with a bronze plaque bearing the inscription "Joseph Samuel Fulton, M.D., 1890-1940. Fifty Years of Service to Humanity and Organized Medicine." Dr. Fulton is at present a councilor of the state association. He became a member of the Indian Territory Medical Association in 1891 and has held office in the state association continuously for twenty-five years. He has missed only two meetings of the state association since its organization in 1906.

PENNSYLVANIA

District Meeting.—The Eighth Councilor District Medical Society held its annual meeting in Warren, June 5. Dr. A. Follmer Yerg, Warren, president of the Warren County Medical Society, gave the address of welcome. Participating in a symposium on diabetes were Drs. Belford C. Blaine, Pottsville; George Booth, Pittsburgh; Frank A. Evans, Pittsburgh, and Edward W. Alton Ochsner, New Orleans. At this meeting testimonial certificates from the Medical Society of the State of Pennsylvania were presented to the following physicians in the eighth councilor district having practiced fifty years:

Dr. Myron A. Bailey, Jamestown, Mercer County, fifty-one years.
Dr. Michael V. Ball, Warren, Warren County, fifty-one years.
Dr. Otis S. Brown, Warren, Warren County, fifty-four years.
Dr. Burg Chadwick, Smethport, McKean County, fifty-two years.
Dr. Glennis E. Humphrey, Cambridge Springs, Crawford County, fifty-one years.
Dr. Hugh Jameson, Titusville, Crawford County, fifty-one years.
Dr. Andrew J. Mitchell, Sharon, Mercer County, fifty-two years.
Dr. Hiram B. Russell, Sheffield, Warren County, fifty years.
Dr. Monroe T. Smith, Warren, Warren County, fifty years.

The woman's auxiliaries of the district also met in annual session at this time.

Philadelphia

"Medicinal Garden" Dedicated.—A "Medicinal Herb Garden" was formally opened in the "back yard" of the College of Physicians, May 23. A tea and inspection of the garden with its growing herbs marked the event. Newspapers reported that it was not until the college moved to its present quarters that the dream of one of its founders, Dr. Benjamin Rush, was realized with the development of a well planned medicinal plant garden. Dr. Rush was said to have suggested at one time the need for a medical library and a medicinal herb garden. An ivy covered brick wall encloses the garden, and planting centers about an astrolabe, which is the gift of Mrs. Alfred Stengel.

Society News.—Speakers before the Philadelphia County Medical Society, May 8, were Drs. John R. Paul, New Haven, Conn., on "Recent Developments in the Epidemiology of Poliomyelitis"; Henry F. Hunt, Danville, "Brucellosis," and Hobart A. Reimann, Philadelphia, "Spotted Fever in Southeastern Pennsylvania." The society held a special meeting, May 2, in observance of Child Health Week, with discussions of immunization, nutrition of the child, habits and training and a panel discussion followed by questions from the audience. The public was invited to this meeting.—Dr. Robert B. Osgood, Boston, gave the Nathan Lewis Hatfield lecture of the College of Physicians of Philadelphia, May 1, on "The Medical and Social Approaches to the Problem of Chronic Rheumatism."—Drs. Louis Kaplan and James A. Lehman addressed the Philadelphia Academy of Surgery, May 6, on "Observations on the Relationship of the Scalenus Anticus to Shoulder Pain" and "Prevention of Complications in Thyroid Surgery" respectively.

The Annual Thomas McCrae Award.—Announcement is made of the Thomas McCrae Award to be given annually at the Pennsylvania Hospital, Philadelphia, to perpetuate the memory of the late Dr. Thomas McCrae and to encourage clinical investigation. All members of the professional staff of the Pennsylvania Hospital, except chiefs of service and directors of departments, are eligible to compete for the \$100 award. In case of co-authorship the award is to be divided among the eligible candidates submitting the most worthy original observations made at and published from the Pennsylvania Hospital. The first award will be given for publications appearing in 1940. Four reprints of each publication to be considered must be submitted to the committee before January 15 of each year, the award to be presented at a special scientific meeting in March of each year. The award committee will consist of three members, two of whom shall be selected from two outside institutions and have no official connection with the Pennsylvania Hospital. Dr. McCrae, who died in 1935, had been professor of medicine at Jefferson Medical College of Philadelphia from 1912 until his death and concurrently physician to the Pennsylvania and Jefferson hospitals. He was chairman of the Section on Practice of Medicine, American Medical Association, 1914-1915.

TENNESSEE

Society News.—Dr. William Wesley Wilkerson Jr., Nashville, was elected president of the Tennessee Academy of Ophthalmology and Otolaryngology at the recent annual meeting in Chattanooga. Dr. James V. Hodge, Kingsport, was elected vice president and Dr. William D. Stinson, Memphis, reelected secretary.—Drs. Burnett W. Wright and John Howard King, Nashville, addressed the Nashville Academy of Medicine and the Davidson County Medical Society, Nashville, May 14, on "Radical Prostatectomy for Carcinoma" and "Neurodermatitis" respectively.—Speakers at a meeting of the Dyer, Lake and Crockett Counties Medical Society, Dyersburg, May 1, were Drs. James B. Cochran, Dyersburg, on "Liver Abscess"; James Wesley McKinney, Memphis, "Corneal Transplantation and Eye Conditions in General Practice," and Thomas M. Jordan, Alamo, "Syphilis in General Practice."—Dr. Hal McCluney Davison, Atlanta, Ga., addressed the Chattanooga and Hamilton County Medical Society, April 26, on "Neuroses from the Standpoint of General Medicine."—Dr. John S. Freeman, Springfield, addressed the Robertson County Medical Society, Donelson, April 16, on typhus fever.—Dr. Byrl R. Kirklin, Rochester, Minn., addressed the Memphis and Shelby County Medical Society, April 16, on "Bleeding Lesions of the Gastrointestinal Tract."—Dr. Ernest R. Zemp, Knoxville, addressed the Knox County Medical Society, Knoxville, April 30, on "The Use of Diuretics in Bright's Disease."

VERMONT

New England Obstetrical Meeting.—The spring meeting of the New England Obstetrical and Gynecological Society was held at Burlington, June 12. Clinics were conducted at the Mary Fletcher Hospital. The program also included a symposium on pelvic trauma and relaxations with the following speakers, all from Burlington:

Dr. Herbert A. Durfee, Obstetrical Conservation of the Birth Canal; Episiotomy, Secondary Repairs.
Dr. Benjamin F. Clark, Restoration of the Birth Canal; Anterior and Posterior Plastic Operations, and the Kennedy Operation for Urinary Incontinence.
Dr. Edward D. McSweeney, Prevention and Treatment of Retroversion.
Dr. Oliver N. Eastman, Surgical Cure of Uterine Prolapse.

WASHINGTON

Refresher Course in Obstetrics.—Drs. Harold M. Teel, instructor of obstetrics and maternal health, Harvard School of Public Health, Boston, and Dr. Charles F. McKhann, associate professor of pediatrics and communicable diseases at Harvard, will deliver refresher lectures in obstetrics in Seattle, July 8, according to the *Bulletin* of the King County Medical Society.

Society News.—Dr. Edward C. Rosenow, Rochester, Minn., addressed the King County Medical Society, Seattle, at a special meeting, May 28, on "Focal Infections." At a regular meeting, June 3, the speakers were Drs. Edward A. LeCocq, on "Analysis of End Results in the Nailing of Fracture of the Neck of the Femur"; Louis H. Edmunds, "Repair of Skin Defects Associated with Fractures and Bone Lesions," and Darrell G. Leavitt, "Painful Feet: Fundamental Principles in Diagnosis and Treatment."—Dr. George W. Cornett, Yakima, was elected president of the Washington State Radiological Society at the annual meeting in Seattle, May 3, and Dr. Ken-

neth J. Holtz, Seattle, secretary. — Drs. Paul Bailey and Roger H. Keane, Portland, Ore., addressed the Cowlitz County Medical Society, Longview, in April on the use of the bronchoscope and a new type of gastroscope.

GENERAL

Request Letters Written by Dr. Abel.—The letters and papers of the late Dr. John J. Abel, professor emeritus of pharmacology, Johns Hopkins University School of Medicine, Baltimore, have been deposited in the Institute of Medicine of Medicine at the university for cataloguing. The institute would welcome any letters written by Dr. Abel prior to 1915 and will return them promptly after they have been transcribed. Please communicate with Miss Helen T. Konjias, 1900 East Monument Street, Baltimore.

American Physiotherapy Association.—The nineteenth annual convention of the American Physiotherapy Association will be held at the Hotel Biltmore, New York, June 23-28. Among the New York speakers will be:

- Dr. Irving S. Wright, New York, Treatment of Peripheral Vascular Diseases.
- Dr. William Bierman, New York, Pathology of Peripheral Vascular Diseases.
- Dr. Barbara B. Stimson, New York, Fractures.
- Dr. Robert Lee Patterson Jr., Kerwin Armand Fischer and Florence K. Winter, D.S., New York, Erb's Palsy.
- Dr. William Benham Snow, New York, Electrical Muscle and Nerve Testing.

The program also includes round table discussions on cerebral palsy and education, scoliosis clinic, and symposium on arthritis. **Home Study Courses in Ophthalmology and Otolaryngology.**—The American Academy of Ophthalmology and Otolaryngology announces the establishment of home study courses in the fundamentals of ophthalmology and otolaryngology, to begin August 1. Any graduate physician and otolaryngologist who has completed a rotating internship or its equivalent, who has committed himself in writing to the secretary of the academy that he plans to enter the specialties and who plans to take the examination of one of the special boards when he is prepared. An applicant may register for courses in only one of the specialties. The fee is \$10. Registration must be made through the executive secretary of the academy, Dr. William P. Wherry, 1500 Medical Arts Building, Omaha, before July 1.

Enforcement of Standards for Surgical Catgut Post-sion of the U. S. Pharmacopeia XII and with the approval of the board of trustees, the enforcement of the standards for surgical gut, which were announced in the second supplement to the U. S. Pharmacopeia XI, are postponed until January 1. These standards were to become official July 1 but, because of the discovery that considerable stocks of surgical gut, conforming to the new pharmacopeial standards with respect to their diameter, tensile strength and sterility but not labeled in accordance with the new official requirements, were still in the hands of dealers, the action herein announced was taken. Since this surgical gut could be used with entire safety it was deemed unnecessary to render the stock unsalable and therefore cause a large financial loss.

Experiments on Five Day Treatment of Syphilis.—The American Social Hygiene Association, New York, has been asked to gather and keep available information on the intravenous drip method of treatment of syphilis. The association requests all physicians and hospitals carrying on experiments with this method of treatment of syphilis to send it brief information regarding the following points:

1. Name of hospital or other institution.
2. Name of principal physician in charge of the intravenous drip study.
3. Type of case or cases of syphilis treated by the intravenous drip method.
4. Name of drug or drugs used (a) by the intravenous drip method, (b) by any other method before, during or after intravenous drip.
5. Routine laboratory work done on cases of syphilis treated by the intravenous drip method.
6. Usual number of hours of intravenous drip treatment per day per patient.
7. Usual number of days of intravenous drip treatment per day per patient.
8. Any other pertinent facts.

The association will, so far as possible, answer inquiries regarding this treatment of syphilis. It has available for physicians, on request, a brief pamphlet on the present status of the intravenous drip method of treatment of syphilis. The address of the American Social Hygiene Association is 50 West Fiftieth Street, New York.

Bibliography of Pharmacology.—A new monthly bibliography is now being issued by the Hooker Scientific Library to record current literature in pharmacology. Entries are in title form but since the actual titles are often not informative a descriptive title is given to each item. Trade or common

names of remedies are identified by addition of the chemical name when possible. Items in a foreign language are given descriptive titles in English. Each entry is spaced apart from other entries so that it can be clipped for mounting on an index card. Photoprint or microfilm copies of original articles can be obtained at small expense from the Hooker Scientific Library, or an abstract of any item will be supplied for a nominal fee. Every foreign language entry carries a statement showing the cost of a complete translation. A specimen copy of the "Bibliography of Pharmacology" and detailed information concerning the library and its work can be had by writing to Hooker Scientific Library, Central College, Fayette, Mo.

The Ashford Award in Tropical Medicine.—At the annual meeting of the American Society of Tropical Medicine in Memphis, Tenn., the Bailey K. Ashford Award in Tropical Medicine was established by Eli Lilly & Co. to be awarded on alternate years for a total of three times. The award will be \$1,000 and a bronze medal suitably engraved. An additional amount of \$150 or as much thereof as may be necessary is available toward traveling expenses for the recipient of the award. It will be given biennially in recognition of demonstrated research in the field of tropical medicine, taking into consideration independence of thought and originality. The investigator must be a citizen of the United States and less than 35 years of age on January 1 of the year in which the award is made. The recipient must not be associated with a commercial laboratory and need not be a member of the American Society of Tropical Medicine. Members of the American Society of Tropical Medicine are to submit, to the secretary of the society in triplicate the name of a proposed recipient with information concerning his personality and training and a statement of the research work for which the award is to be made. All nominations must be in the hands of the secretary at least sixty days before the dates of the annual meeting and given opportunity to present a short review of his work at the meeting. The committee of award shall consist of the president of the society ex officio and three members of the society, each to serve for a period of six years, one to be elected every other year at the annual meeting by the council, except that the original committee be elected at once by the council on nomination of the president, one member to be elected for six years, one for four years and one for two.

Results of the Golf Tournament at New York.—At the twenty-sixth annual tournament of the American Medical Golfing Association, at Winged Foot Golf Club, Mamaroneck, N. Y., Monday, June 10, in a field of 145 golfers, Dr. John Murphy, Detroit, won the championship with a gross of 160 for thirty-six holes and at the banquet was presented with the Will Walter Trophy. The runner-up was Dr. G. R. Love, Oconomowoc, Wis., with a score of 162. Dr. Love was awarded the St. Louis Trophy. Other winners in the thirty-six hole event were Drs. C. E. Moore, Harrisburg, Pa.; F. O. Hendrickson, Springfield, Pa.; J. C. Cox, Maplewood, N. J.; E. B. Sullivan, New York City; E. S. Edgerton, Wichita, Kan., and J. J. Marek, Cleveland. Dr. D. H. Houston, Seattle, and Dr. R. J. Vreeland, Paterson, N. J., were tied for the thirty-six hole Handicap Championship. On the toss, Houston won the Detroit Trophy and Vreeland won the president's cup. Other winners in the handicap championship flight were Drs. A. M. Paulson, Plainfield, N. J.; R. M. Wolff, Lebanon, Pa.; W. C. Spiedel, Seattle; P. H. Watson, Newburgh, N. Y.; C. G. Prather, Westwood, N. J., and W. D. Sheldon, Rochester, Minn.

Dr. J. J. Hennessy, Hartford, Conn., won the eighteen hole championship, gaining the Golden State Trophy. The eighteen hole handicap championship went to Dr. R. L. Cox, Starr Junction, Pa., who won the Ben Thomas Trophy. Second place went to Dr. J. M. Robb, Detroit, who took home the Atlantic City Trophy. In the Maturity Event the Minneapolis Trophy went to Dr. Frank A. Kelly, Detroit. Dr. Charles Lukens, Toledo, Ohio, won the Wendell Phillips Trophy, emblematic of championship among the past presidents of the American Medical Golfing Association. Dr. D. H. Houston was elected president, Dr. Harry E. Mock of Chicago, first vice president, and Dr. James Craig Joyner, New York City, second vice president of the A. M. G. A. Bill Burns, Lansing, Mich., was reappointed executive secretary. Dr. Hall, the retiring president, was made a member of the board of directors. The next tournament will be held in Cleveland in June 1941.

Foreign Letters

PARIS

(From Our Regular Correspondent)

May 25, 1940.

Traumatic Shock

Until recently, surgeons and physiologists were in accord regarding shock, considering it a condition accompanying traumatic toxemia. This agreement has not withstood the impact of recent investigations on histamine or on the vasomotor tonus and the biochemical humoral changes. The recent work of Frank C. Mann and his collaborators has led to some conclusions. A large number of men are found at the front with a treacherous syndrome characterized by vasomotor, circulatory and psychic insufficiency, the result of a series of diverse syndromes due to hemorrhage, emotion, pain and fatigue and to toxic and infectious absorption. Shock so defined is a complication involving depression and toxemia. It is frequently fatal. Aid must quickly be given to the wounded before complications and the critical moment occur which set the vicious circle of shock in motion. We now have a series of new therapies. Prophylaxis consists in providing proper food and care and in administration of respiratory and cardiovascular analeptics, to which might be added atropine, strychnine and picrotoxin, not to mention oxygen. Preventive therapy may be adapted to certain conditions such as hemorrhage, nervous exhaustion and gas poisoning. Curative therapy consists in restoring body temperature, maintaining the activity of the cardiovascular system by physiologic serum employed in moderation and a constant check of the venous pressure. Acidosis must be combated by sodium bicarbonate and anoxemia by oxygen. Besides, certain manifestations will control therapy and make mandatory transfusions in cases of hemorrhage, of blood stagnation and of complete paralytic vasodilatation. These are the views recently presented by G. Jannoney and L. Justin-Besançon before the Academy of Surgery. Two significant facts appeared: The garrot retards the appearance of shock; amputation cures it, even if performed during complete and grave shock. The role of absorption of proteins devitalized by the trauma is thus brought out. Léon Binet and M. V. Strumza obtained good results in grave experimentally induced hemorrhage by means of a mixture of three parts of serum saturated with oxygen and one part of citrated blood. However, a hemorrhage is not a traumatic shock. Lambret, who was to make a report on shock before the Congress of Surgeons which was to take place in Stockholm in 1941 but has been canceled, stressed two principal factors in the origin of shock: one an immediate neurovegetative factor whose point of departure was the wound, with multiple small filaments of the sympathetic nerve; the other a delayed toxic factor caused by the pressure of liberated proteins in the blood. Lambret concluded that the essential remedies against shock consisted in transfusions in large quantities and large doses of insulin. However, he realized that further investigations were needed.

Typhus Fever

Danielopolu and his collaborators during and after the war of 1914-1918 observed widespread typhus epidemics in the Orient. Recently they pointed out before the Academy of Medicine that war epidemics furnished the gravest cases. Typhus seems to become intensified by passing successively through the bodies of individuals and disease vectors. Russia constituted the great virus reservoir. The principal characteristic of the infection was its localization in the vascular system, where lesions manifested themselves in conjunctival injections and vasodilatation of the face followed by lesions of the walls of the vessels. These were succeeded by "syndromes of the extremities" and myocardiac, renal and nervous disorders. Danielopolu said that

in hypertrophic cases one could find as many as 100,000 leukocytes and in fatal cases as many as 126,000. Two abnormal factors were present: plasmocytes with basophilic protoplasm and monocytoïds of endothelial or reticulo-endothelial origin that sprang from vascular desquamation and possessed great diagnostic value. Rapid increase of leukocytes carried with it a fatal prognosis. Simultaneously there appeared changes in the cerebrospinal fluid, such as leukocytic reactions, red blood corpuscles and xanthochromia.

Typhus fever as well as relapsing fever was transmitted, he said, by the body louse. Infections could be caused by the crushing of lice in contact with the skin or by touching the conjunctiva with contaminated fingers. Lice feces also played a certain part, but the bite of the insect introduced the virus into the blood. In this way the occasional occurrence of typhus among physicians and nurses was to be explained. The presence of many lice was needed to spread relapsing fever, but a few sufficed to cause typhus, if they carried the infection. This explained certain epidemiologic phenomena, for example the clear distinction between the evolution of the two kinds of epidemics. In case of a combined epidemic a widely practiced delousing caused relapsing fever almost to disappear entirely, while typhus persisted because it required fewer disease carriers.

The viability of typhus virus was considerable and often bridged the intervals between epidemics. M. Balthazard and G. Blanc reported to the Société de pathologie exotique experiments with lice excrements, the infectivity of which was retained for more than 300 days. Dried virus could thus be transported in the baggage and the clothes of refugees. These authors pointed out that the infection of rat fleas by the virus of epidemic typhus coincided with that of the body louse by the same virus and that of fleas by the virus of rat typhus. Paul Durand and Paul Giraud discussed before the Academy of Science their methods of antityphus vaccination by means of a fine emulsion of mouse lungs infected by way of the respiratory organs; that is, an emulsion of rickettsiae killed by a solution of formaldehyde. They demonstrated the harmlessness of the injections in all cases and the total absence of virulence in the vaccine.

BUDAPEST

(From Our Regular Correspondent)

May 15, 1940.

Scientific Cooperation with Germany

Scientific cooperation between Germany and Hungary, Yugoslavia, Bulgaria and Greece is shown by the exchange of students carried out last summer. The summer courses held in Germany under the direction of Prof. Walter Lörch were a great success. From Hungary twenty-seven students, from Yugoslavia thirty-six, from Bulgaria nineteen and from Greece twenty-two took the exchange courses. The majority were medical and veterinary students, but there were many agricultural students. During their stay in Germany they performed, besides theoretical studies, practical work in clinics, hospitals and model farms and in the summer camps of the youth labor service.

Similarly German students visit the Southeastern European countries every summer. They are provisionally trained for this excursion at the academy in Leipzig. This scientific exchange of students between Germany and the Near East has been going on for five years. After the completion of these courses every student is obliged to write a treatise on what he learned. This academic exchange is directed by the Mittel-Europa Institute in Dresden, Germany, which has branches in the capitals of all countries concerned.

The Law on Artificial Abortion

Up to the present every physician had a right to induce abortion in case of danger to the life of the mother. Without any formality, he was obliged only to bring the act to the notice

of the public prosecutor in a confidential way. In all cases in which there was no immediate danger to life, preliminary authorization by the prosecutor was necessary and was issued on the basis of the opinion of another physician. On the ground of the registration books of the prosecutor's office the ministry of justice established the fact that in certain parts of the country the number of such operations was very great. The suspicion arose that it is very easy to procure medical certificates recommending the performance of abortion. On this ground the minister of justice modified the law. The prosecutors have been instructed to give permission only (1) if there is danger to the mother's life which cannot be averted in any other way; (2) if pregnancy aggravates the disease of the woman and there is no other way to avert the danger; (3) if one of the parents is suffering from insanity. The prosecutor issues the permission by observing the following rules: After filing the doctor's application for permission, the prosecutor on duty and the forensic doctor appear in the home of the pregnant woman and the latter examines her. The imminent danger having been established, the permission is issued. In instances described in paragraphs 2 and 3 the application to the prosecutor has to be supplemented by the certificate of a hospital doctor or a certificate must be issued by two physicians who have held a consultation. The consultant must be a specialist in female diseases. On receipt of the application the prosecutor appoints a medical committee consisting of the forensic doctor, a specialist of the disease from which the woman suffers and the district medical officer of health. The committee submits to the prosecutor a written report. The prosecutor handles all matters with professional secrecy as long as there is no evidence that a criminal act has been committed in connection with the operation.

Buenos Aires

(From Our Regular Correspondent)

May 10, 1940.

New Regulations Regarding Medicines

The National Department of Hygiene in Buenos Aires has issued new regulations regarding the trade in medicaments. One is that directly underneath the name of the medicine it must be indicated whether it is obtainable without or only with prescription. Advertising has been restricted in certain respects; on the labels, in the prospectuses and in other types of printed matter that are enclosed with the medicine as well as in the advertisements, only the pharmacologic action may be mentioned, whereas it is absolutely forbidden to list diseases or clinical symptoms. This regulation applies not only to new preparations but also to those already accepted. In the case of the latter, the regulations must be complied with within one year, otherwise the permit for the marketing of the preparations in question is withdrawn. An official list contains the details regarding the pharmaceutical classification and the sale. These measures were approved by large medical and pharmaceutical groups. A large number of letters of appreciation have been published in the *Boletín Sanitario del Departamento Nacional de Higiene*.

The president of the Argentine Republic, Dr. Ortiz, has issued a regulation according to which the accumulation of medicines for speculation is prohibited.

Health Conditions in Argentina

The report of the National Health Department for 1938, issued recently, contains interesting information. Progress has been made in combating malaria; the number of patients treated was in round numbers 160,000. More than 1,800 Kg. of quinine was distributed and in addition almost 140,000 tablets of atabrine and 72,000 of plasmochin, which quantities were larger than in the preceding year. There is a special Dirección General del Paludismo, which has authority over the six northern provinces and which used for purposes of sanitation large quantities of

petroleum and paris green; moreover, drainage of swamps and other well known sanitation methods were employed. In rural regions, the campaign is difficult. It is limited mainly to the distribution of medicines free of charge. To protect nurslings, 300 cradles were acquired which are impenetrable to mosquitoes.

Of the scientific advances, there is the detection of *Anopheles annulipalpis* in Mendoza, the existence of which was formerly regarded as doubtful; its larva was hitherto unknown. Studies revealed that this is chiefly a zoophilic mosquito with only a slight tendency to attack human subjects. The endemic zone extends over 120,000 square kilometers having 850,000 inhabitants of whom 550,000 live in rural regions and 300,000 in already sanitized regions. To effect further improvements, an extensive program has been outlined.

Fifteen cases of plague with a mortality of 80 per cent were observed during 1938. In the North it is again the Dirección General del Paludismo which conducts the campaign against plague. The infection there seems to be traceable to the prevalence of the disease among the rodents of the forests, and it is probable that it entered Argentina by way of the northern boundary with Bolivia.

Fifty-three cases of smallpox were introduced from neighboring countries.

The number of new cases of leprosy was 327. The total number of leprosy patients under control at the end of 1938 was about 3,500.

Ancylostomiasis is the most important sanitary problem in a certain zone in the northern part of Argentina, especially in Corrientes. The greatest obstacle in the eradication of this endemic is that 63 per cent of the houses have no latrine.

Goiter is prevalent in some of the eastern districts; thus 27 per cent of 13,000 school children were found to have it. With the aid of school teachers, iodine therapy was extended also in the northern parts of the country, where goiter seems to be decreasing.

The protection of mother and child was extended by the establishment of additional centers in the interior of the country. The number of centers already functioning increased from seventeen to twenty-six. Consultations were given to more than 5,000 pregnant women and to 19,000 children; moreover, more than 10,000 home visits were made and 1,200,000 meals were served.

The activities of the section for the control of narcotics was continued by its director, Dr. R. A. Pita. The quantity of narcotic alkaloids imported during 1938 was considerably below the average for the preceding years. In the estimate of the requirements for 1939, the quantity for cocaine decreased by 50 per cent and that of heroin by 33 per cent, whereas that for morphine remained unchanged.

Marriages

JEFFERSON GIDEON WALDROP to Miss Lytle Rowland, both of Lewisburg, Tenn., in Louisville, Ky., recently.

THOMAS ANTHONY GARRETT, Philadelphia, to Miss Velma V. Moersdorf of Jersey City, N. J., March 25.

JOHN A. GLORIOSO, Lima, Ohio, to Miss Elsie Cahill of Halifax, Nova Scotia, Canada, February 5.

RALPH DANIEL BOLTON to DR. SARAH CURTISS, both of Canton, Ohio, in South Euclid, March 30.

JOHN TALLMAN JARRETT, Dunbar, W. Va., to Miss Anne Mildred Wood of Richmond, Va., May 1.

WILLIAM A. SCHROER, Fort Lorame, Ohio, to Miss Ellen Elizabeth Boyer of Miamisburg, May 4.

THOMAS FINDLEY JR., St. Louis, to Miss Jean Kyer of Ann Arbor, Mich., in St. Louis, April 11.

JAMES E. MURTAUGH, Charles City, Iowa, to Miss Margaret McGowan of Fort Dodge, May 25.

Deaths

Alfred James Scott Jr. ☉ Los Angeles; University of Southern California College of Medicine, Los Angeles, 1909; member of the House of Delegates of the American Medical Association in 1934 and 1936; clinical instructor in pediatrics at the University of California Medical Department from 1909 to 1912; clinical instructor in pediatrics at his alma mater, 1912-1913, assistant professor of pediatrics from 1914 to 1918, associate professor 1918-1919 and professor 1919-1920; professor of clinical pediatrics from 1920 to 1934, professor of pediatrics and later professor of pediatrics emeritus at the College of Medical Evangelists; fellow of the American College of Physicians; past president of the Southwestern Pediatric Society and the Los Angeles Obstetrical Society; member of the California State Department of Public Health from 1922 to 1932; member of the attending staff, Los Angeles County Hospital, from 1910 to 1924 and the consulting staff from 1924 to 1936; on the staff and member of the medical advisory board from 1922 to 1937; president of the California Babies Hospital from 1920 to 1931; aged 58; died, April 17.

Charles Richard ☉ Brigadier General, U. S. Army, retired, Washington, D. C.; University of the City of New York Medical Department, 1876; member of the House of Delegates of the American Medical Association in 1907 and 1914; entered the regular army as an assistant surgeon in 1879; served during the Spanish-American War; at various times was in command of the Army Medical School, Walter Reed Hospital, the Sternberg Hospital in Manila and the Medical Supply Depot in New York; during the World War he was one of the principal assistants in the office of the Surgeon General; from 1888 to 1889 was lecturer of military medicine and professor of surgery from 1889 to 1891 at the University of Colorado; was commissioned a colonel in 1910 and was retired in 1918 by operation of law; under the Act of June 21, 1930, was commissioned a brigadier general; aged 85; died, April 19, of coronary thrombosis, arteriosclerosis and hypertension.

Alfred Hans Waring Caulfeild, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1904; past president of the Association for the Study of Allergy and the American Association for the Study of Asthma; member of the American Clinical and Climatological Association; served during the World War; associated with the department of pensions and national health; research member of the Connaught Laboratories, University of Toronto; on the staffs of the Christie Street Hospital, Toronto General Hospital and the Toronto Western Hospital; director of the pathology department, Muskoka Cottage Hospital and the Muskoka Free Hospital for Consumptives, Sanitarium; aged 60; died, May 2.

Walter Leslie Huggins ☉ Los Angeles; Albany (N. Y.) Medical College, 1899; University of Southern California College of Medicine, Los Angeles, 1908; fellow of the American College of Surgeons; formerly associate professor of surgery at the College of Medical Evangelists; aged 68; consulting surgeon to the Los Angeles County Hospital and Orthopedic Hospital; attending surgeon to the Methodist Hospital and the Hollywood Hospital, where he died, April 18.

Clifford Weld Skinner ☉ Meadville, Pa.; Rush Medical College, Chicago, 1930; formerly assistant dean and associate professor of anatomy at the Medical College of Virginia, Richmond; director of health, Allegheny College; member of the American Society of Anesthetists, Inc.; on the staff of the Meadville City Hospital; aged 47; died, April 22, of cerebral hemorrhage.

Clarence Worrel Prevost ☉ Pittston, Pa.; Jefferson Medical College of Philadelphia, 1894; fellow of the American College of Surgeons; past president of the Luzerne County Medical Society; surgeon to the Lehigh Valley Railroad and the Lackawanna and Wyoming Valley Railroad; on the staff of the Pittston Hospital; aged 74; died, April 30, of heart block.

Henry Wireman Cook ☉ Minneapolis; Johns Hopkins University School of Medicine, Baltimore, 1902; vice president and medical director of the Northwestern National Life Insurance Company; past president of the Association of Life Insurance Medical Directors; aged 62; died, April 25, of coronary thrombosis.

Edward William Hall, San Diego, Calif.; Long Island College Hospital, Brooklyn, 1897; veteran of the Spanish-American and World wars; formerly member of the board of health of New York City; for many years on the staff of the Harlem Hospital, New York; aged 79; was drowned, April 7.

Theodore James Peake, Clinton, S. C.; University of Nashville (Tenn.) Medical Department, 1906; member of the South Carolina Medical Association; served during the World War; aged 59; died, April 14, in the Veterans Administration Facility, Columbia, of peptic ulcer with massive hemorrhage.

Caleb Edwin Witt, Little Rock, Ark.; Missouri Medical College, St. Louis, 1889; Hospital College of Medicine, Louisville, Ky., 1896; emeritus professor of medicine at the University of Arkansas School of Medicine; for many years on the staff of the Baptist Hospital; aged 77; died April 23.

Reba Lloyd ☉ Bridgeton, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1898; past president of the Cumberland County Medical Society; past president of the board of health; aged 72; owner of the Ivy Hall Sanitarium, where she died, April 14, of chronic myocarditis and arthritis.

Lewis Perley Felch ☉ Boston; Tufts College Medical School, Boston, 1906; for many years on the staff of the Massachusetts General Hospital and the Carney Hospital; was medical examiner for the industrial accident board; aged 68; died, April 2, of arteriosclerosis and uremia.

Henry Joel Walcott ☉ Concord, Mass.; Jefferson Medical College of Philadelphia, 1896; on the staff of the Emerson Hospital; for many years on the staff of the Massachusetts Reformatory, West Concord; aged 68; died, April 17, in the Massachusetts General Hospital, Boston.

Francis Jervois Callanan, Boston; Harvard Medical School, Boston, 1918; member of the Massachusetts Medical Society; fellow of the American College of Surgeons; aged 45; surgeon to the Massachusetts Women's Hospital, where he died, April 21, of carcinoma of the right lung.

Samuel Frank, Brooklyn; Long Island College Hospital, Brooklyn, 1904; member of the Medical Society of the State of New York; served during the World War; on the staffs of the Coney Island Hospital and the Brooklyn Eye and Ear Hospital; aged 62; died, April 5, of uremia.

Jacob J. Schloss, Boston; Julius-Maximilians-Universität Medizinische Fakultät, Würzburg, Bavaria, Germany, 1925; instructor of Medicine at Tufts College Medical School; on the staff of the Joseph H. Pratt Diagnostic Hospital; aged 41; died, April 23, of coronary thrombosis.

William Martin Millar, Westport, Conn.; Johns Hopkins University School of Medicine, Baltimore, 1927; formerly assistant professor of surgery, University of Cincinnati College of Medicine; aged 38; died, April 12, in the Duke Hospital, Durham, N. C., of Hodgkin's disease.

Alden Robbins Hoover ☉ Elizabeth, N. J.; State University of Iowa College of Medicine, Iowa City, 1905; fellow of the American College of Surgeons; formerly a medical missionary; served during the World War; aged 63; died, April 29, of coronary thrombosis.

Clarence Prentice Rice, Breckenridge, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1906; member of the American Academy of Ophthalmology and Otolaryngology; aged 64; died, April 12, of cerebral hemorrhage and arteriosclerosis.

Martha Eleanor Lovell, Winthrop, Mass.; Woman's Medical College of Pennsylvania, Philadelphia, 1899; member of the Massachusetts Medical Society; aged 73; died, April 22, in the Peter Bent Brigham Hospital, Boston, of coronary thrombosis and arteriosclerosis.

Abraham L. Farnsworth ☉ Baraboo, Wis.; Milwaukee Medical College, 1900; past president of the Sauk County Medical Society; on the staff of St. Mary's Ringling Hospital; aged 73; died, April 20, of chronic nephritis and chronic myocarditis.

Gilbert Alonzo Ashmun, Brooklyn; Long Island College Hospital, Brooklyn, 1895; member of the Medical Society of the State of New York; served during the World War; aged 66; died, May 2, in the Brooklyn Hospital of brain tumor.

Charles Glover Shannon, Chicago; Reliance Medical College, Chicago, 1910; served during the World War; aged 55; died, April 25, in the Veterans Administration Facility, Bay Pines, Fla., of arteriosclerotic hypertensive heart disease.

Henry Erwin Shaw, Ashland City, Tenn.; Vanderbilt University School of Medicine, Nashville, 1882; University of Nashville (Tenn.) Medical Department, 1883; aged 82; died, April 21, of lobar pneumonia and arteriosclerosis.

Gertrude Jones Cuscaden, Chillicothe, Ohio; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1874; member of the Nebraska State Medical Association; aged 90; died, May 16, of myocarditis and pneumonia.

Herbert Llewellyn Mains, Danvers, Mass.; University of Vermont College of Medicine, Burlington, 1912; member of the Massachusetts Medical Society; served during the World War; aged 62; died, April 6, of coronary thrombosis.

Henry C. Bowman, Schuylkill Haven, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1890; member of the Medical Society of the State of Pennsylvania; aged 85; died, April 19, of acute coronary occlusion.

John Moody Yeager, Marlinton, W. Va.; University of Louisville (Ky.) Medical Department, 1901; aged 63; died, April 14, in the Chesapeake and Ohio Railroad Hospital, Clifton Forge, Va., of cerebral hemorrhage.

Edward Wallace Young, New Bedford, Mass.; Tufts College Medical School, Boston, 1913; member of the Massachusetts Medical Society; served during the World War; aged 53; died, April 16, of cirrhosis of the liver.

Oscar Herman Riemenschneider, Cleveland; Cleveland Homeopathic Medical College, 1903; served during the World War; aged 59; died, April 7, in the City Hospital of bronchopneumonia and acute hemorrhagic cystitis.

Fernando A. B. Roys, Syracuse, N. Y.; College of Physicians and Surgeons, Keokuk, Iowa, 1873; Chicago Medical College, 1881; aged 95; died, April 26, in the Syracuse Memorial Hospital of coronary thrombosis.

Felix M. Williams, Hot Springs National Park, Ark.; Vanderbilt University School of Medicine, Nashville, Tenn., 1891; aged 78; died, April 11, in St. Joseph's Hospital of a streptococcal infection of the throat.

Wilfred Henry Gardner, Los Angeles; Chicago Homeopathic Medical College, 1902; University of Illinois College of Medicine, Chicago, 1904; served during the World War; aged 62; died, April 24, of heart disease.

Elmer Kenneth Umberger, Flatonia, Texas; University of Tennessee College of Medicine, Memphis, 1931; at one time health officer of McCreary County, Ky.; aged 35; died, April 23, of an overdose of a hypnotic.

Walter Henry Rice @ Boston; Tufts College Medical School, Boston, 1896; Harvard Medical School, Boston, 1899; aged 67; died, April 19, in the Cambridge (Mass.) Hospital of carcinoma of the stomach.

Frederick Terrell, San Antonio, Texas; Harvard Medical School, Boston, 1881; formerly mayor, president of the school board and bank president; aged 84; died, March 11, of arteriosclerotic heart disease.

William Francis Wright @ Portsmouth, R. I.; Baltimore Medical College, 1908; member of the Massachusetts Medical Society; aged 59; died, April 11, in Miami, Fla., of gastrointestinal hemorrhage.

John Darrow Tupper, North Dartmouth, Mass.; Boston University School of Medicine, 1895; for many years school physician; aged 81; died, March 4, in the Fall River (Mass.) General Hospital.

Alexius Henri Archambault, Montreal, Que., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1909; aged 53; died, March 24.

Paul Wayne Butz, Plymouth, Mich.; Northwestern University Medical School, Chicago, 1929; member of the Michigan State Medical Society; aged 39; was killed, May 1, in an automobile accident.

William A. Chapman, Miami, Fla.; Meharry Medical College, Nashville, Tenn., 1913; aged 53; died, April 30, of septicemia following abscess of the right hip joint due to an automobile accident.

Frank Sherman Kitson @ North Manchester, Ind.; Rush Medical College, Chicago, 1895; aged 69; died, April 25, in the Wabash (Ind.) County Hospital of cardiovascular renal disease.

Herbert Cooper, Drexel Hill, Pa.; Jefferson Medical College of Philadelphia, 1903; served during the World War; aged 66; died, April 10, of cardiac embolism and diabetes mellitus.

James Wesley Pollard, Homelake, Colo.; Memphis (Tenn.) Hospital Medical College, 1904; member of the Colorado State Medical Society; aged 65; died, April 8, of pulmonary abscess.

George Sinclair Gordon, Vancouver, B. C.; McGill University Faculty of Medicine, Montreal, Que., 1897; member of the North Pacific Surgical Association; aged 71; died, April 16.

John Cotton, Burnt Hills, N. Y.; Harvard Medical School, Boston, 1871; member of the Medical Society of the State of New York; aged 90; died, April 27, of chronic myocarditis.

Milton Ross Keeley, Los Angeles; Rush Medical College, Chicago, 1886; veteran of the Spanish-American War; aged 76; died, April 2, of chronic myocarditis and nephritis.

Edmond William Parsons, San Francisco; Cooper Medical College, San Francisco, 1905; aged 58; died, April 30, in St. Mary's Hospital of hypertension and arteriosclerosis.

Martin William Curran, Chatsworth, N. J.; Long Island College Hospital, Brooklyn, 1896; served during the World War; aged 73; died, April 17, of angina pectoris.

Daniel Livingston Morrison, New Brunswick, N. J.; New York University Medical College, 1897; aged 64; died, April 1, of arterial hypertension and myocarditis.

Reuben Baston Dearborn, Miami Beach, Fla.; Medico-Chirurgical College of Philadelphia, 1902; aged 59; died, April 17, in the Mound Park Hospital, St. Petersburg.

Nathan Cohen @ Brooklyn; Long Island College Hospital, Brooklyn, 1909; on the staffs of the Greenpoint and Beth Moses hospitals; aged 57; died, May 5, of carcinoma.

Daniel William Boden, Pasadena, Calif.; Eclectic Medical College of the City of New York, 1884; aged 82; died, April 1, of cerebral hemorrhage and diabetes mellitus.

Alexander S. Barger, Washington, D. C.; Howard University College of Medicine, Washington, 1894; aged 74; died, May 1, of arteriosclerosis and hypertension.

Karl Steinbeck, Parkersburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1905; aged 58; died, April 20, in the Camden-Clark Memorial Hospital.

Llewellyn J. Sanders, Rochester, N. Y.; New York Homeopathic Medical College and Hospital, 1895; aged 67; died, April 6, of chronic bronchiectasis.

Alphonse Ames Kergosien, Bay St. Louis, Miss.; University of Louisville (Ky.) Medical Department, 1909; aged 59; died, April 23, of chronic encephalitis.

Clark Everett Baker @ Marion, Ill.; Vanderbilt University School of Medicine, Nashville, Tenn., 1917; aged 47; died, May 14, of pneumonia and heart disease.

Henry B. Curtis, Denver; Gross Medical College, Denver, 1893; member of the Colorado State Medical Society; aged 74; died, May 4, of bronchopneumonia.

Roseoe Campbell, Toronto, Canada; University of Toronto Faculty of Medicine, 1910; aged 53; died, April 8, in the Toronto Western Hospital.

C. H. McCaslin, Kansas City, Mo.; Kentucky School of Medicine, Louisville, 1881; aged 87; died, April 29, of arteriosclerosis and hypertension.

Hugh Henry Graham, Fenelon Falls, Ont., Canada; Trinity Medical College, Toronto, 1882; M.R.C.S., England, 1884; aged 85; died, March 25.

Anngnette Fowler Noble @ Westfield, Mass.; Woman's Medical College of Baltimore, 1893; aged 79; died, April 30, of coronary thrombosis.

Fred B. Albaugh, Tyler, Texas; Chattanooga (Tenn.) Medical College, 1903; aged 62; died, April 22, in Rusk, Texas, of coronary occlusion.

John William Thorn @ Houston, Texas; Beaumont Hospital Medical College, St. Louis, 1898; aged 74; died, April 24, of diabetes mellitus.

Francis Hope Thibodo, Ventura, Calif.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1895; aged 69; died, March 25.

Charles Abner Johnston, Harford, Pa.; Bellevue Hospital Medical College, New York, 1880; aged 86; died, April 24, of arteriosclerosis.

Thomas Zeien, North Branch, Minn.; Rush Medical College, Chicago, 1884; aged 77; died, April 8, of uremia and arteriosclerosis.

Jacob L. Manasses, Philadelphia; Medico-Chirurgical College of Philadelphia, 1897; aged 65; died, April 6, of cerebral hemorrhage.

George F. Gardner, Ellisburg, N. Y.; Albany Medical College, 1878; formerly health officer; aged 82; died, April 13, of carcinoma.

Elmer E. Eddy @ Redwood, N. Y.; University of Buffalo School of Medicine, 1890; aged 78; died, April 30, of diabetes mellitus.

Julius W. Boiarsky, Cincinnati; Medical College of Ohio, Cincinnati, 1905; aged 58; died, May 3, of coronary occlusion.

A. Rudolph Walker, Cincinnati; Medical College of Ohio, Cincinnati, 1884; aged 78; died, April 23, of myocarditis.

Bureau of Investigation

CORRESPONDENCE

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Benaris.—Benaris, Cleveland. Composition: Essentially liquid petrolatum, camphor and ephedrine. Fraudulently represented as an effective treatment for coughs, nasal catarrh, sinusitis, hay fever, sleeplessness, blurred vision, pains in the sides and heart, headaches from alcoholic indulgence, and many other disorders.—[N. J. 30644; November 1939.]

Gordon Red Liniment.—McConnon & Co., Winona, Minn. Composition: Essentially a small amount of camphoraceous material and red pepper in a solution of carbolic (ethyl ether of diethylene glycol) and water, colored with a red dye. For earache, simple throat irritations, toothache, colic and casual swellings from congestion. Fraudulent therapeutic claims.—[N. J. 30648; November 1939.]

Neu-Life.—Health Laboratories, Sacramento, Calif. Composition: Essentially plant material including small percentages of calcium, magnesium, iron, iodine, sulfur, phosphorus, potassium and sodium. Adulterated because falsely declared to contain vitamin D; misbranded because labeled "Contains No Drugs" and because product fraudulently represented "to imbue the user with new life, to build up a new health and happiness, and to overcome glandular weakness and nerve prostration."—[N. J. 30622; November 1939.]

Normal Nux.—Norden Laboratories, Lincoln, Neb. Composition: Not more than 11 grains of strychnine and brucine sulfates per fluid ounce. Adulterated and misbranded because represented on the label to contain 14.6 grains of these substances.—[N. J. 30620; November 1939.]

San-O-Sen Antiseptic Spray.—San-O-Sen Laboratories, Chicago. Composition: Essentially water, pine oil, soap and a small amount of glycerin. For skin irritations. Fraudulent therapeutic claims.—[N. J. 30640; November 1939.]

Zilatone.—Drew Pharmacal Co., Buffalo. Composition: Tablets containing phenolphthalein, bile salts, pepsin, pancreatin and extracts of plant drugs, including red pepper, nux vomica and a laxative. Fraudulently represented to increase the digestion, stimulate the liver and bile, remedy chronic constipation, certain forms of gallbladder disorders, including gallstones; to relieve intestinal putrefaction and other bowel disorders.—[N. J. 30625; November 1939.]

JAMAICA "SPECIALIST" OFFERS A "RUPTURE CURE"

But U. S. Post Office Turns Thumbs Down

The mail-order quacks have promoted "cures" for cancer, tuberculosis, anemia, psoriasis, diabetes, Bright's disease, arteriosclerosis, high blood pressure, baldness, crooked noses and complexion ills. The entire catalogue is too long to list here! Among the treatments that obviously must be administered to the patient in person is one for hernia; yet some exploiters brazenly claim that rupture is something that can be cured by mail!

One of these gentry, an H. F. Pettitt of Kingston, Jamaica, British West Indies, advertised:

"RUPTURE CURED PERMANENTLY. SENSATIONAL! H. Pettitt (Specialist)"

When the United States Post Office investigated this enterprise, it learned that persons who answered the advertisement received printed form-letters reading in part as follows:

A NEW ERA HAS DAWNED FOR THE RUPTURED PERSON

H. F. PETTITT (SPECIALIST) INVENTOR OF THE JIFFY STOPPER—FOR THE RELIEF AND CURE OF RUPTURE

The new cure for hernia (rupture) is to close the opening where the bowels get through which cause the swelling, by a scientifically constructed device which is entirely different from anything else known for

the treatment of rupture. This wonderful device, the "Jiffy Stopper," contracts the opening by thickening the tissues, strengthening the walls and muscles, eventually closing the opening entirely—thus making a CURE . . . The Jiffy Stopper has the indorsement of physicians, the Chamber of Commerce of Jamaica, the Jamaica Imperial Association, and ruptured persons everywhere as the only reliable gadget for hernia.

According to the Post Office memorandum on this case "The device sold in the scheme is a simple truss which is made of a wire spring, a leather strap, and two covered composition pads, one on each end of the wire spring so that one will cover the hernia and the other will provide counter pressure on the buttocks."

Expert medical evidence was introduced at the hearing of this case to show that the proper treatment of a common inguinal hernia is the tightening of the stretched or strained lining of the abdomen and also a tightening of the ligamentous structures of the abdominal wall. The medical evidence further showed that the "Jiffy Stopper" would not thicken the tissues of the hernial opening or strengthen the walls and muscles "eventually closing the opening entirely," as represented by the promoters of this scheme. This representation, therefore, was declared to be false and fraudulent. Hence to set forth the device as a cure for all ruptures "in a short time" or in any length of time was shown to be a dishonest practice, as was the claim that by the wearing of the Jiffy Stopper "it is impossible" for the hernia to slip out of place. Accordingly a fraud order was issued on Aug. 14, 1939, against the names H. F. Pettitt, H. Pettitt, Specialist, and H. F. Pettitt, Specialist, debaring this individual and his scheme from the United States mails.

Correspondence

GALLSTONES IN CHILDREN

To the Editor:—In the article entitled "Gallstones in Children" by Seidler and Brakeley (THE JOURNAL, May 25, p. 2082) no mention is made among the etiologic factors of the hemolytic anemias—spherocytic ictero-anemia in whites and sickle cell anemia in Negroes. While by no means common, neither are these conditions extremely rare, and they should be borne in mind whenever gallstones are encountered in children. In fact, the case reported by the authors has many features which strongly suggest the presence of sickle cell anemia. A 10 year old Negro girl with a six year history of recurrent bouts of fever and abdominal pain who is said to have had rheumatic fever at the age of 4 years and has experienced intervals of jaundice and arthralgias since and who complains now of anorexia and weakness presents the classic historical background of sickle cell anemia. The notations that she appeared to be chronically ill and that a systolic murmur was heard at the apex of the heart are features found in sickle cell anemia which, along with the history of recurrent fever and arthralgias in the past, frequently cause a faulty diagnosis of rheumatic fever to be made. The anemia and leukocytosis presented by the patient on admission are additional manifestations that characterize sickle cell anemia. Even the pericholedochal lymphadenopathy on which the authors lay stress might be adequately explained by sickle cell anemia.

It would be of great interest to learn whether or not examinations were made for the presence or absence of the sickling phenomenon in the red blood cells of the patient. It would likewise be of interest to learn something more of the character of the gallstones found; If these were of the pure pigment type, the possibility of an underlying hemolytic disturbance would, to some extent, receive additional support. There is one other feature of the laboratory data presented which merits some remark. The Van den Bergh test "both direct and indirect" is reported as "negative." I would presume that by "negative" the authors mean to convey that the "indirect

Van den Bergh test yielded a bilirubin level that was less than the maximum value, which they accept as within normal limits. The so-called indirect Van den Bergh test is in reality a quantitative estimation of the existent bilirubinemia, and as such it would make for more clarity to report it quantitatively in terms of milligrams per hundred cubic centimeters of serum rather than to employ such nondescript terms as "negative" or "positive." It is, moreover, a little difficult to understand why a patient who is clinically jaundiced and who has an icteric index of 25 should have a bilirubinemia within normal values.

J. EDWARD BERK, M.D., Philadelphia.

LABELING AND DEMOCRACY

To the Editor:—The April 27 issue, page 1671, comments on the labeling of vitamin-containing alcoholic beverages. It is undoubtedly a bad thing that the public should be misled with regard to vitamins in beverages or foods. On account of the publicity that vitamins have received, the public undoubtedly has a general idea that anything that contains vitamins must therefore be desirable.

I do not think, however, that one can defend a ruling which states that a label on a beverage or anything else should not contain truthful information concerning that material. It would certainly be proper to make a ruling forcing the manufacturer to put on the label the actual quantity of vitamins present, and it would be proper to prevent the appearance on the label of any misleading therapeutic claims.

It appears to me that this is an example of the paternalistic tendency of government bureaus. It is undoubtedly good for the health of the public that it should be protected, but whether it is good for our political future that government bureaus should interfere with the people's rights to a knowledge of the truth, and their freedom to act on that knowledge, even when one suspects that they may not act wisely, if carried to its logical conclusion leads to benevolent despotism. In these days when we are fighting so hard for the preservation of democracy, I much dislike to see such small nibblings at the margins of democracy.

R. R. NEWELL, M.D., San Francisco.

INJECTION OF VARICOSE VEINS

To the Editor:—Drs. Dean and Dulin have reported two fatal cases of pulmonary embolism following injection of varicose veins (*THE JOURNAL*, April 6, p. 1344). They do not state whether other nonfatal cases of embolism occurred in their total of 600 cases. The mortality of this accident is apparently high: Dean and Dulin quote Silverman's collection of twenty cases with fifteen deaths.

In one of the cases reported by these writers an interval of six days elapsed between the first and the second (fatal) embolism. During this interval the patient is described as having bronchopneumonia. Despite this consequence of embolism, might it not have been possible to ligate the external iliac vein and thus forestall the subsequent fatality? I reported such an operation, done after the second embolism (*Am. J. Surg.* 45:145 [July] 1939). It was possible with spinal anesthesia to ligate the vein above its proximal thrombosed area; no further embolism occurred.

Drs. Dean and Dulin have rightly emphasized the importance of high ligation of the saphenous vein prior to injection of varicosities.

K. P. A. TAYLOR, M.D.,
Puerto Armuelles, Chiriqui,
Republic of Panama.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

INDUSTRIAL SAFETY GLASSES

To the Editor:—The question has arisen, regarding so-called safety spectacles used in industry, as to the relative quality of flat and 6.00 curve lenses. This is especially directed to the perfection to which these lenses are ground or polished for use by a workman who does not require a correction. I am particularly interested in the comparison of the merits of flat versus curved lenses. Many workmen complain that the curved lens causes headache. I would appreciate any information regarding this subject.

R. M. Brown, M.D., Buffalo.

ANSWER.—The lenses in industrial safety glasses are most commonly of the tempered variety, and except for increased thickness and ease hardening they are identical in quality and finish with standard, first quality ophthalmic lenses. Case hardening consists simply of heating the lens to a level just below its melting temperature and then cooling both surfaces simultaneously by compressed air. With a hypersensitive individual the spectacle places an annoying weight on the nose, and the reduced air circulation about the eye aggravates the discomfort of chronic conjunctivitis if present. In plano tempered lenses the deep meniscus form has effects not present in flat lenses: 1. Surface reflections are more noticeable. 2. A magnification results, though less than 1 per cent. 3. In convergence, a slight prismatic effect is produced, which may be as much as one-fourth prism diopter base out for each eye, which might be disturbing to one with more than the usual exophoria for near vision. All these effects are more likely to be ignored if a proper correcting lens is worn instead of a plano glass.

ACROPARESTHESIA

To the Editor:—A manual worker has pains in his fingers around the nails. He wears gloves at work and says that his fingers have been tender for years. There is no evidence of disease. What could cause this? What treatment should be given?

M.D., Texas.

ANSWER.—This meager description indicates acroparesthesia. If it is a typical case the attacks of pain appear more often at night or the first thing in the morning and wear off as the patient works or they are relieved by soaking the hands in warm water. They are worse in winter or if the patient has to work with cold water or handle ice. The pain may be accompanied by sensations of numbness, tingling or formication. On examination most cases prove to be hyposensitive rather than hypersensitive and show hypalgesia rather than hyperalgesia. The abnormal sensations as well as the abnormal reactions to touch and pain are general in all the fingers and are not confined to any particular nerve distribution, and there is no tenderness of the nerve trunks. In spite of the sensation of stiffness left after the attack subsides, there is never any swelling. This represents the Schultze type of acroparesthesia. The Nothnagel type is differentiated by the fact that the skin becomes blanched and cold or even cyanotic during attacks. Cassirer, an authority on this group of nervous disorders, believes that the Nothnagel group, which is not so common as the other, is an intermediate form between acroparesthesia and Raynaud's disease (Cassirer, R.: *Die vasomotorischen trophischen Neurosen*, Berlin, S. Karger, 1901).

The prognosis is good as far as concerns serious development, but the disease often resists treatment. Many cases are so mild that treatment is never sought. Cassirer mentions one case that he watched for twenty-five years without being able to see any significant progress. Spontaneous remissions occur at times.

Women between 40 and 60 years of age are most often afflicted, but when the disease occurs in men it is said to be more severe. Fine hand work, cold, trauma, anemia, excessive use of alcohol or the presence of other toxins are held responsible in some cases. In women pregnancy, the puerperium or the menopause may precipitate the disease. Psychic disturbances may be the cause in some cases. Tuberculosis and syphilis are seldom to blame. Many cases occur, however, in which no etiologic factor can be discovered.

Raynaud's disease, hysteria, neuritis, abortive forms of tetany, oncoming acromegaly, syringomyelia and ergotism have to be

QUERIES AND MINOR NOTES

Jour. A. M. A.
June 22, 1940

differentiated. Tabes dorsalis sometimes begins with paresthesia in the extremities, but a definite nerve distribution can usually be found.

The pathogenesis of this disease is not clear. An interesting discussion of it and a report of the author's own case, caused by quinidine, is found in *Acroparesthesia and Quinidine*, a Query and a Quest, by S. E. Jelliffe (*J. Nerv. & Ment. Dis.* 79:631 [June] 1934) in which the author analyzes his case and lists the American literature on the subject.

A careful examination may reveal an underlying condition such as anemia or a mental factor that can be corrected. Rest is the logical treatment, but most cases of the disease occur in those who are compelled to work. So far as possible, exposure to cold, especially cold water or ice, should be avoided. Alcohol or other toxic factors should be eliminated. In women during the climacteric, endocrine preparations may be valuable. In cases in which no such etiologic approach is possible, electrotherapy and hydrotherapy are often of benefit. K. A. Ekblom has recently recorded success (Treatment of Acroparesthesia with Acetylcholine: Report of Twenty-One Cases, *Acta psychiat. et Neurol.* 14:311 [No. 1-2] 1939, abstr. *THE JOURNAL*, Dec. 2, 1939, p. 2103) with intramuscular injections of acetylcholine 0.1 Gm. daily or every other day.

heart shadow, though there is no proof of this otherwise. It should be looked for in further follow-up study. There is no cardiac tamponade evident now. Exploration for pericardial resection is as yet not in order so far as the present situation is concerned, but if more definite evidence should develop in the future of pericardial constriction, resection of the pericardium would then be advisable. There is evident also in this case a large nervous factor, perhaps associated with beginning menopause.

Some important additional information should be obtained, a new electrocardiogram, which should be abnormal, showing low voltage or low or inverted T waves if pericarditis is present, differential count of the white corpuscles to look for eosinophilia, and a follow up of the x-ray study of the heart shadow.

OVARIAN TUMORS AND ESTROGEN PRODUCTION

To the Editor:—What type of endometrium—proliferative or secreting—is usually found with the following ovarian tumors: theca cell, granulosa cell, dysgerminoma, arrhenoblastoma? Which of these tumors secrete estrogen or progesterone or both?

M.D., New York.

ANSWER.—Granulosa cell and theca cell tumors of the ovaries may be classified together, at least on the basis of similar clinical features and common genesis. Hyperplastic endometrium of the "Swiss cheese" variety is commonly found in individuals suffering with these tumors. This hyperplastic change of the endometrium is perhaps more extensively associated with granulosa cell tumors. Increased production of estrogen has been demonstrated in women suffering from either theca cell or granulosa cell tumors, and estrogen in excessive amounts has been extracted from both granulosa cell and theca cell tumor tissues.

Dysgerminomas are rare gonadal tumors often associated with pseudohermaphroditism and various types of sex underdevelopment. They elaborate no estrogenic hormone, but the preputary hormone, the follicle stimulating factor, has been found in a case recently reported in the literature. It is authoritatively stated that these tumors exert no sexual influence, but it is felt by some that they may exert weak masculinizing effects. The endometrium in cases of dysgerminoma is always hyperplastic when found in women with sexual underdevelopment. A number of cases have been reported in the literature, however, in which the uterus and its endometrium were entirely normal. Arrhenoblastomas of the ovaries exert a defeminizing and masculinizing effect. The tumor secretes an abundance of the testis hormone rather than the estrogenic substance. The endometrium usually undergoes an atrophy of a type ordinarily associated with the senile uterus.

TOXIC DOSAGE OF LEAD

To the Editor:—In the answer to a query concerning the toxicity of lead in chalk (*The Journal*, Nov. 4, 1939, p. 1755), the statement was made that the usual safe limit of daily lead absorption is 2 mg. per day if breathed air and larger amounts if taken by mouth. I should like to know the evidence on which these statements are based, particularly in view of opinion of authorities as reviewed by Colver (*The Journal*, Nov. 5, 1938, p. 1722) that the ingestion of 0.32 mg. of lead per day was considered dangerous.

J. H. Clark, M.D., Philadelphia.

ANSWER.—A good recent discussion in the literature of the toxic dose of lead is that by Ferdinand Flurry (*Handbuch der experimentellen Pharmakologie*, Heft 8 and Heubner, editors, Berlin, Julius Springer 3:1575-1889, 1934) and practically all the references to this problem are there discussed. A few references, however, might be added in regard to minimal toxic doses. Dr. Blair Bell states that intravenously the smallest dose that will give symptoms is 100 mg. of colloidal lead in men and 40 mg. in women. By mouth, 5 mg. per kilogram manifestations, Sollmann gives the figure of 0.2-0.3 mg. of lead per kilogram per day for many weeks, and other authorities all give higher figures than this. In breathing lead-contaminated air, Legge and Goadly, in their book on lead poisoning, state that 2 mg. daily breathed over a long time may cause poisoning after years, and this is the reference on which the usual minimal standard of lead is based. The famous drinker of lead water cited by P. Schmidt is a good example of taking lead by mouth. He drank 2.6 liters of water with a concentration of 2.9 mg. of lead per liter daily. After he had taken 5.3 Gm. of lead in two and one-half years he complained of pain in his calf muscles; after two and one-half years more, when he had taken 12.6 Gm. of lead, he had typical lead poisoning. It was diminishing during these five years. It would also be of interest to look up the article by Kehoe, Thammann and Cholack in the *Journal of Industrial Hygiene* (15:306 [Sept.] 1933) in

PROBABLE POLYSEROSITIS

To the Editor:—A married woman aged 49, with four grown children, seen for the first time in August 1939, complained of a hacking, dry cough, particularly noticeable on rising in the morning. When I saw her she produced a small amount of mucus, slightly blood tinged, which I thought due to the violence of coughing. This coughing had been going on for three or four months prior to my seeing her. A poor appetite may have been a cause for a small loss in weight during the summer. Her appetite is only slightly better now and her weight is stationary at 148 pounds (67 Kg.). She is listless and weepy and she complains of having been sick a good part of her life, but after a good night's rest she is jolly. She always feels better in the morning and worse as the day passes. Noise and visitors fatigue her. She has had transient attacks of pain and aching in both shoulders, alternately and at times over the heart. Motion increases the pain, which may last two days in one shoulder joint and then disappears, reappearing in the other shoulder. So far no other joints have been involved. She had some pleural pain in the left side, followed by the development of a clear yellow transudate in the left pleural sac. Only a few plasma cells and occasional leukocytes were found in the fluid. At this time the right side was normal. I did three left pleural taps, the first two being followed by relief in coughing. Now fluid and crepitant rales have developed in the right side of the chest on auscultation. A chest plate showed general increase in lung markings on the left side and a globular heart shadow with increased shadow to the left. The cardiothoracic ratio is 16:30. The aortic knob is not visible. Her pulse has been slow and soft. The blood pressure is around 108/70 but often goes down to 102/62. She has such a dark complexion that I at first thought she had Addison's disease. She said that about four years ago she noticed large brown splotches break out on her forearms, but there is no abdominal pain except definite tenderness over the gallbladder region. Her bowels are regular once or twice a day and the stools are well formed, but she did say that during the summer she was alternately constipated and diarrhetic. There does not seem to be any fluid in the abdomen. Her extremities are normal. There are no heart murmurs, and the heart tones are quiet and distant. A Wassermann reaction was negative, as was also the Mantoux. Sputum tests for tuberculosis were negative. Examination of the urine was negative. White blood corpuscles numbered 6,000, red blood corpuscles 5,000,000, and hemoglobin was 85 per cent. She has had no fever; the temperature is often subnormal and only occasionally rises to 99 F. A tenderness over the gallbladder area has lessened. I have not been able to detect any enlargement of the liver. A cholecystogram showed normal filling and emptying. An electrocardiogram done over a year ago is reported to be negative. The patient had scarlet fever when a child. She says that she was quite ill and that off and on since that time she has had arthritis-like pains in the shoulders. Other details are lacking. A sister died of a stroke at 39. Her father died of a carcinoma. There is no tuberculosis in the family. My impression is that this is Pick's disease, possibly originating from a rheumatic condition associated with pericardial adhesions. She has been in bed for six weeks, and I have been treating her more or less symptomatically. I have put her on salicylates for two weeks and the pain has disappeared. Recently I stopped the salicylates for two days and she again complained of pain over the heart today. I would appreciate any suggestions you might have to offer in the way of a better diagnosis and methods of treatment. Has the severing of pericardial adhesions proved helpful from the surgical standpoint?

John S. Giffin, M.D., Waterloo, Iowa.

ANSWER.—In the first place there is no indication of chronic constrictive pericarditis or so-called Pick's disease in this case. For such a diagnosis clear evidence of increased systemic venous pressure must be present with engorged neck veins, enlarged liver, and probable ascites and dependent edema. These things are not evident here. Polyserositis, however, of obscure etiology or so-called idiopathic or on the basis of disseminated lupus. From the data submitted it is impossible to determine what polyserositis may be due to. Polyserositis itself may in time be followed by chronic constrictive pericarditis. There may well be slight pericardial effusion as suggested by the increase in the

which it is concluded that "the occurrence of lead poisoning may be expected under conditions in which lead is excreted at a mean rate above 1.1 mg. per day in the feces, and 0.21 mg. per liter in the urine." It is to be expected that conflicting views on the toxic dose of lead will continue to be held until more data are obtained by the newer chemical methods which are capable of determining quantitatively amounts of lead which would be completely missed by the older methods. Further, the susceptibility of different persons varies widely.

FREQUENCY OF URINATION IN YOUNG GIRL

To the Editor:—A girl aged 4 years had a mild laryngitis for several days in the middle of December 1939. One week later she developed frequency of urination, which is still present. The frequency is only diurnal, occurs every fifteen to forty-five minutes, and is not associated with any pain or irritation. Often just the urge to urinate is present. Physical examination revealed no abdominal masses and no dilated bladder; the external genitalia showed no inflammation or discharge present. The temperature is normal and so is the pulse rate. The patient has a good appetite and is otherwise well developed. Her fluid intake has not increased. She was hospitalized to determine the cause of the frequency. Laboratory examination revealed blood nonprotein nitrogen 30 mg., urea nitrogen 14 mg., blood sugar 90 mg. and creatinine 1.3 mg. per hundred cubic centimeters of blood. The dextrose tolerance test showed a normal curve. Urinalysis (repeated) showed albumin negative, sugar negative, no white blood cells, no red blood cells and no casts. Vaginal as well as urine smears showed the absence of organisms and trichomonas. Catheterized urine specimens revealed no growth as culture. The urine was either neutral or alkaline. The residual urine was 40 cc. The blood Kline reaction was negative. The red and white blood counts as well as the hemoglobin tests were normal. The tuberculin test (1:1,000 old tuberculin) was strongly positive, so much so that the patient's temperature increased by from 1 to 1.5 degrees for three days during the height of the reaction. A roentgenogram of the chest showed nothing abnormal. The grandmother died of tuberculous peritonitis ten months ago. The patient feels well but the frequency is still present. Please advise as to diagnosis and further laboratory procedures to determine the cause. The administration of tincture of belladonna and phenobarbital have not produced relief.

M.D., Ohio.

ANSWER:—The frequency of urination may be due to one of several causes. The history reveals that the grandmother had tuberculosis and presumably was in contact with the child. The child is said to have a strongly positive tuberculin reaction. These two facts would call for a careful investigation of the urine for the presence or absence of tubercle bacilli. It might be necessary to concentrate the urine or obtain a catheterized specimen, which could be injected into a guinea pig in a search for the tubercle bacilli.

An intravenous pyelogram or further urologic study of the bladder and genito-urinary tract might be indicated in an attempt to discover a tuberculous lesion or other abnormalities which might be the basis for frequency of urination.

Sometimes central lesions in the brain may cause this symptom. A tuberculoma of the brain should be thought of in this case.

Diabetes insipidus may cause frequency in urination. The urine in such cases is of low specific gravity.

The symptoms may be on a neurogenic basis or some other central condition. An eyeground examination and a careful neurologic examination would be of value in determining a central cause for the condition.

VITAMINS IN CHRONIC ALCOHOLISM

To the Editor:—Please outline the latest treatment for alcoholism for a patient on the verge of delirium tremens. I know there is almost complete avitaminosis in this condition and vitamin B₁, vitamin C and nicotinic acid are especially indicated. Please advise as to dosage and other measures.

M.D., North Dakota.

ANSWER:—Strictly speaking, vitamin therapy is not a treatment of alcoholism, but it frequently is of value in the treatment of the hypovitaminosis that accompanies chronic alcoholic addiction. This lack of vitamins is chiefly the result of the failure of addicts to eat sufficient vitamin-containing food. While the failure results in a lack of all of the food-contained vitamins, the most common clinical indication of vitamin lack is the occurrence of peripheral neuritis. This condition, formerly known as alcoholic neuritis, has been found to yield to therapy with thiamine hydrochloride (vitamin B₁). Hence the specific indication for thiamine is the occurrence of peripheral neuritis. This substance may be given in doses as high as 50 mg. daily and must be continued over a period of several weeks. Treatment may be begun with daily intravenous injection of from 20 to 50 mg. of thiamine hydrochloride. After two weeks, oral administration of thiamine may be employed with the same dosage, or the intravenous dose may be reduced. Treatment should be continued until the patient is relieved of the symptoms of neuritis.

Delirium tremens, another phase of alcoholism and usually precipitated by some injury or acute infection, does not respond well to thiamine hydrochloride. Another factor of the vitamin B complex, nicotinic acid, in many instances has been found to be effective here. Doses of from 0.3 to 0.5 Gm. are necessary. If a good response is obtained it will become evident in from twenty-four to forty-eight hours. While these doses are much larger than those usually employed when using nicotinic acid, unfavorable side effects have not been reported. The patient's skin may become flushed and he may describe a generalized feeling of warmth. It should not be necessary to continue the oral administration of from 0.3 to 0.5 Gm. daily for more than two or three days. The treatment of peripheral neuritis is a long range affair but that of delirium tremens is an acute emergency.

CIRCULATION AFTER CUTTING VEIN

To the Editor:—In an operation, blood vessels are cut and the closed circuit of the cardiovascular system ceases to be a closed circuit so far as the cut vessels are concerned. At the time of the cutting, the cut veins contain blood. A portion of this blood flows back into the wound. What happens to the blood that remains in the cut veins? The cardiac contractions can no longer supply to them pressure from behind, and many of them are so situated that adequate help from pressure occasionally exerted by externally placed skeletal muscles is out of the question. How does the blood remaining in the cut veins get back to the heart?

Edward E. Cornwall, M.D., Brooklyn.

ANSWER:—The presence of valves beyond the cut in the veins and the so-called venopressor mechanisms which create intermittent pressure on the remaining veins are sufficient to ensure that the blood remaining in the cut veins gets back to the heart. This applies, of course, to the veins between the cut and the heart. The venous blood flow is dependent not only on the residue of pressure remaining after the arterial blood passes through the arterioles, capillaries and venules but in addition is dependent to a large extent on the venopressor mechanisms, consisting (1) of the massaging action of skeletal muscles during their contraction and, to a lesser extent, during the tetanic twitching which constitutes muscle tone, (2) of the intermittent compressing action of the diaphragm during inspiration on the abdominal contents, including the blood in the veins, and (3) of the intermittent aspiration during inspiration created by the increase in negative intrathoracic pressure.

Gravity, depending on the position of the patient, would aid the venous return when the vessel is open.

Only a small portion of the cut vein will be separated from the closed cardiovascular circuit, since veins have a rich system of collaterals. The cut vein will empty its contents by a reflex tonic contraction of its musculature, and eventually the part distal to the venous valve will become fibrosed.

BOILS AND CARBOHYDRATE METABOLISM

To the Editor:—What is the present view of the role of a high carbohydrate diet in the etiology of recurrent boils? Is there any evidence to indicate that a change of diet in any way predisposes to this condition so long as it is adequate in respect to all essential food factors? Could you suggest any references?

J. G. Sheps, M.D., Eriksdale, Man.

ANSWER:—Osler, in the 1898 edition of his textbook (Osler, William: Practice of Medicine, ed. 3, p. 425) mentions boils and carbuncles as extremely common in diabetes. The skin is dry and harsh, sweats rarely, except in an occasional case in which drenching sweats alternate with polyuria. Eczema occurs and at times an intolerable itching, especially located on the genitalia. This was the picture of diabetic skin in the pre-insulin period. Not only the loss of resistance due to the general reduction of health by the metabolic disturbance but, added to this, the dry skin and intense itching predisposed to infection of the hair follicles, which resulted in boils and carbuncles. This has led to an idea quite general in the medical mind that all patients with boils have a defective sugar metabolism and that the dietary carbohydrates must be cut down to a minimum in order to aid recovery.

Tauber in 1933 came out in opposition to this idea and backed up his criticism of it by statistics (Tauber, E. B.: Hyperglycemia in Diseases of the Skin, *Arch. Dermat. & Syph.* 27:198 [Feb.] 1933). In his series of 514 diabetic patients only eighteen had furuncles, which good result he ascribes to the present day successful management of the disease. In 217 cases of cutaneous disease, including "seborrheic eczema, furunculosis and other pyodermias, dermatitis venenata, scabies, lupus, tinea and burns," he found no disorder of carbohydrate metabolism, blood sugar determinations ranging from 82 to 96 mg. per hundred cubic centimeters.

To test the matter further, he treated 189 cases of furunculosis by local applications of physiologic solution of sodium

chloride or weak solution of aluminum acetate and gave the patients a diet high in carbohydrates (Wenckebach No. 3) plus feedings of liver extract. In addition to this he gave daily injections of 5 per cent dextrose solution, 500 cc. intravenously. The feeling of pain and tension subsided in most cases after the second injection and the signs of inflammation diminished. In half the cases, the boil slowly absorbed without suppuration or sloughing. In only four of the 189 cases did a second boil appear, and in only one case was there a third one.

This experience seems to demonstrate not only that hyperglycemia is not a common accompaniment of furunculosis but that in many cases of furunculosis in which hyperglycemia has been ruled out recovery is aided by a diet high in carbohydrates and the intravenous injection of dextrose solution.

A dietary deficiency producing cutaneous changes such as the dryness of the skin in vitamin A deficiency can be expected to reduce resistance and predispose to follicular infection; but there is no reason to think that any diet "adequate in respect to all essential food factors" could so predispose unless there were some underlying disorder such as a disturbance of sugar metabolism. The careful search for such disturbance continues to be a prime requisite in the investigation of every case of furunculosis.

ANIMAL PARASITES AND MAN—CHLORINATION OF WATER

To the Editor:—1. Tenants in my seashore cottage last summer had dogs heavily infested with tapeworms and probably other things. The floors are of pine boards with wide interspaces to collect dust. It seems impossible really clean the house. Is there danger of infection, human or canine, from ova after the winter? 2. Our town water supply has been contaminated for years by herds of cows and flocks of sheep grazing about the pond and wading in the water to drink. My repeated complaints have been without effect on the local health officers and the state Department of Health at Providence disclaims jurisdiction. The water is heavily chlorinated. Will chlorination destroy the ova of animal parasites? Is not heavy chlorination of drinking water over years injurious to human beings? We have a record of a very high incidence of "appendicitis" and other gastrointestinal complaints among the native population, and many members of the summer colony, like myself, are forced to buy spring water for drinking and even cooking purposes.

M.D., Rhode Island.

ANSWER.—1. The only animal parasite of importance that may be acquired from dog feces is *Echinococcus granulosus* (hydatid cyst); the dog is infected via the ingestion of the raw flesh of infected sheep. The chance of infection with *Dipylidium caninum* is slight; only about 100 human cases have been reported.

2. (a) Chlorination does not destroy the ova of animal parasites.

(b) It is as yet open to question whether the ingestion of heavily chlorinated water over a long period of time is injurious to man. To date there is no direct and indubitable evidence of a harmful effect.

(c) The ingestion of materials heavily contaminated with bacteria not infrequently gives rise to gastrointestinal disturbances even though the bacteria are relatively nonpathogenic per se (as the colon bacillus) or killed by some pasteurization or sterilization process.

HIGH PULSE PRESSURE IN YOUNG ATHLETE

To the Editor:—What is the significance of a systolic blood pressure of 142 and a diastolic of 40 in an athlete aged 21? He is a boxer and in otherwise splendid condition. The Wassermann reaction is negative. Repeated blood pressure recordings have been made.

Stanley M. Gates, M.D., Monticello, Ark.

ANSWER.—Habitual exertion, such as occurs in physical training, frequently results in a gradual fall of the diastolic tension (Scott, V. T.: Effects of Daily Exercise on Pulse and Arterial Pressure, *Mil. Surgeon* 55:334 [Sept.] 1924). Violent exertion, such as occurs in boxing or running, increases the systolic tension and may result in some left ventricular hypertrophy. A systolic tension of 142 in a man aged 21 is, however, distinctly abnormal. One would wish to know more of the family history and past illnesses, particularly those in which occult renal injury may have occurred. Though the heart is obviously compensated at present, this does not preclude the possibility of organic defect. Thorough investigation by a 2 meter x-ray film, electrocardiogram and auscultation before, during and after exertion are urgently indicated. Aortic regurgitation is not an impossibility to account for the excessive pulse pressure. Such valvular lesions are occasionally discovered in athletes in otherwise excellent physical condition and with exceptional stamina and reserve for violent effort (Jokl, Ernst, and Suzman, M. M.: Aortic Regurgitation and Mitral Stenosis in a Marathon Runner, *The Journal*, Feb. 10, 1940, p. 467).

It is most important to know whether the diastolic tension was read at the fifth phase of silence or at the muffling of tone, the fourth phase. If the point of onset of the fifth phase was used, the error may be considerable: from 5 to 55 mm. (Melvin and Murray, *Quart. J. Exper. Physiol.* 45:1891, 1924). In certain pathologic states the fourth phase may be greatly prolonged and the beginning missed. As a source of error this possibility must be given due consideration.

Though a reading of 142/40 is unusual at any age, and particularly exceptional in young, presumably healthy, individuals, further study of the case should reveal an explanation. It is impossible to do more than suggest possible causes for these phenomena on the basis of the data submitted.

PREPARING FUNGUS EXTRACTS

To the Editor:—I would greatly appreciate any advice given for preparing extracts of cultures of skin fungus for subcutaneous injection.

L. F. Friedmann, M.D., Belize, British Honduras.

ANSWER.—Extracts of fungi can be prepared by two general methods. One commonly used for nonpathogenic fungi and also applicable to pathogenic fungi is as follows: The fungus is usually inoculated on a liquid medium such as Sabouraud's and allowed to grow at room temperature until sufficient maturity has been reached as judged by the production of a typical color or by the cessation of the growth. This usually takes from about ten days to three weeks. At the end of this period the fluid is drained off and discarded and the pellicle is killed by immersion in 95 per cent alcohol for from twenty-four to forty-eight hours. The pellicle is then dried and ready for extraction. The moist pellicle, prior to killing with alcohol, can be also extracted. The extracting fluid usually employed is a glycerosaline solution containing 50 per cent glycerin. After about twenty-four hours' extraction the material is filtered and the fluid sterilized by Seitz filtration. After routine testing for sterility, the material is ready for use when properly diluted.

Pathogenic fungus extracts are also commonly prepared by extracting the organisms with the medium in which they are grown, filtering the latter and using the fluid as the extract.

SEROLOGICALLY POSITIVE BLOOD SQUIRTED INTO EYE

To the Editor:—A physician treated a subungual hemotoma by incision and digital compression, which compression caused some blood to squirt and enter his left eye. This accident occurred almost a month ago and immediately after the accident he treated his left eye with 20 per cent solution of mild protein silver. He took a blood specimen of his patient, which showed positive Kline and doubtful Kohn reactions. I started treatment with nearsphenamine immediately and have given him five injections thus far. I have also treated his eye with 1 per cent yellow oxide of mercury ointment. Since the accident occurred three weeks ago, I have not been able to discern any clinical evidence of infection or any primary lesion of the sclero, cornea or conjunctiva of the eye. Ophthalmoscopic examination has revealed no pathologic changes in the eye-grounds to date. Since there are no other clinical evidences of the presence of syphilis, I am planning to give him a series of only ten nearsphenamine injections. Will it be safe to say that there is no infection if no clinical evidence appears sixty days after the accident? Do you suggest that I start a series of bismuth injections after completing the arsenicals?

M.D., Ohio.

ANSWER.—The chances are that the physician-patient would not have contracted an infection from the small amount of blood which squirted into his left eye. As the patient has been already started on therapy, it puts both physician and patient in somewhat of a dilemma. It is similar to the man who has a suspected lesion on the penis and on whom treatment is started at once without the making of a positive diagnosis of syphilis. There is no such thing as half way measures for the treatment of syphilis. One either treats the patient fully or waits and keeps him under observation until a positive diagnosis can be made. Under the circumstances there seems to be no other course but continue the treatment just as if he had contracted syphilis.

The injections of nearsphenamine should be continued until a total of ten have been given. The first injection of bismuth subsalicylate should be given with the last of nearsphenamine and continued for a course of six injections, followed with another series of ten injections of nearsphenamine, and this in turn with eight further injections of bismuth subsalicylate, ending with a short course of eight injections of nearsphenamine and a final ten injections of bismuth subsalicylate. It is recommended that thereafter the patient be kept under observation, a serologic blood test being taken once in three months for the first year and twice a year thereafter. It is also suggested that a serologic blood test be taken at the end of each course of treatment.

PSORIASIS AND DIAGNOSIS OF SYPHILIS

To the Editor:—A young man has a rash over his body that resembles psoriasis, and a pathologist reports psoriasis from a biopsy. From twelve Wassermann reports he has had four positive and the rest negative. He has received some antisyphilitic treatment from various physicians at different intervals for the last ten months, at one time receiving treatment continuously for a period of twenty weeks, at which time he received ten injections of nearsphenamine and ten of bismuth in oil. During and following this treatment the lesions were no better. He has been to various good dermatologists, who all tell him after the original examination that he does not have syphilis. At a later date they get a positive Wassermann reaction and even though they have several negative Wassermann reactions they tell him that he has syphilis. The patient is married and has two children, aged 2 and 4 years, both well and with a negative Wassermann reaction. His wife is also well and has had six negative Wassermann reactions over the past eight months. I know that in certain conditions the Wassermann report is positive. Is psoriasis one of these conditions and in about what percentage of the cases does this appear? Am I justified in giving him antisyphilitic treatment with this history? How can I definitely prove to him that he does or does not have syphilis?

M.D., Alabama.

ANSWER.—Psoriasis is not among the conditions that tend to produce nonspecific or false positive "Wassermann" reactions. Of course, it is possible that a patient may coincidentally have psoriasis and syphilis, and likewise an occasional patient is seen who manifests a recurrence or relapse of the syphilis in the form of psoriasis-like plaques at the common sites for psoriasis, namely the extensor surfaces. The other diagnostic possibility offered by this patient is that he has psoriasis and is producing false positive serologic tests from some other cause.

The four positive and eight negative serologic reactions in the absence of clinical signs and no history of syphilis are not sufficient grounds on which to start treatment. The spinal fluid should be examined and, if found to be positive, the diagnosis of syphilis is then tenable. If the cerebrospinal fluid is negative, a specimen of blood should then be drawn, divided into four parts and one part sent to each of four laboratories. The reports from these combined tests might then be the basis for the decision with regard to the subsequent course for this patient. If the reports are in the main negative or if one or two of them are weak positives, the patient should be placed on observation and have serologic rechecks and a reexamination every six months for several years. On the other hand, if the majority of the reports are conclusively positive, this should be a sufficient ground for the diagnosis of syphilis and the institution of treatment.

It is not always possible to prove definitely to a patient that he does or does not have syphilis. Time with repeated serologic tests and reexaminations is often necessary to establish the diagnosis or prove the absence of the disease.

HEPARIN AND EMBOLISM

To the Editor:—A woman aged 42 has had rheumatic valvular heart disease for more than twenty years. There have been four episodes of right cerebral embolism in the last five years, the last attack occurring today. The origin of these emboli is evidently a mural thrombus in the left auricle. Has heparin been used in the treatment of such a case? The blood pressure ranges around 129/90. The pulse rate remains about 80 with a digitalis dosage of 25 minims (1.5 cc.) of the tincture each morning.

W. A. W. Switzer, M.D., Ridgway, Pa.

ANSWER.—It is possible that heparin may have been used in the attempt to prevent mural thrombosis in the auricles of a rheumatic heart in the absence of any active process in the way of acute rheumatism or bacterial endocarditis, but there has been little or nothing written of such an experience if it has been tried. It is hardly a practical measure, since the heparin must be given intravenously and would have to be administered repeatedly or for long periods in such a case as the one cited, in which there were evidently a good many months between embolic accidents. Thus, such treatment would be a different and even more difficult matter than that in coronary thrombosis and bacterial endocarditis, in which conditions experimental therapy has not yet yielded the adequately favorable results that were at first hoped for.

FRACTURE OF THYROID CARTILAGE

To the Editor:—I should like information with regard to the frequency with which fracture of the thyroid cartilage either on one or both sides occurs in accidental injuries. I should also like to know what the prognosis is with regard to complete healing of these fractures.

M.D., Arizona.

ANSWER.—L. A. Stimson (Fractures and Dislocations, Philadelphia, Lea & Febiger, 1912, p. 189) was able to collect twenty-four cases of fracture of the thyroid alone and published reports in the literature. Among these there were eighteen deaths and six recoveries. There were five cases of fracture of the thyroid cartilage and hyoid bone with three

deaths and two recoveries. There were nine cases of fracture of the thyroid cartilage and the cricoid cartilage, all fatal. There were two cases of fracture of the thyroid cartilage, cricoid cartilage and hyoid bone, with death. There were also two fatal cases of fracture of the thyroid cartilage, cricoid cartilage and trachea. Further details of these series are given by William Hunt (Fractures of the Larynx and Ruptures of the Trachea, *Am. J. M.* 51:378 [April] 1866) and Albert Hénocque (Traumatic Fractures of the Larynx, *Gaz. hebdomadaire* 5:610 [Sept. 26], 625 [Oct. 2] 1868).

As Kellogg Speed (Fractures and Dislocations, Philadelphia, Lea & Febiger, 1928) said, prognosis is grave. "Primary death followed from suffocation after increasing dyspnea, emphysema or edema of the glottis." Tracheotomy is practically always indicated. The prognosis with regard to complete healing is doubtful. It may be necessary to wear a tracheotomy tube permanently.

IMMUNOTRANSFUSIONS IN LEUKEMIA

To the Editor:—A patient has recently told me of a reported immunotransfusion treatment for leukemia. His story is that a mother, given the blood from a child having leukemia, later gave life-saving transfusions to the same child. The mother also was used as a source of transfusions to cure leukemia in other patients subsequently. Is there any basis for this report?

M.D., Idaho.

ANSWER.—There is no good evidence that immunotransfusions of the sort described are of any value in leukemia in man. In certain kinds of transmissible leukemia of animals such effects have been described. But this condition, although superficially similar, is apparently an entirely different disease from that occurring in man. Transfusions of any normal blood may be of considerable temporary benefit in leukemia.

VESICOPERINEAL FISTULA AFTER RESECTION FOR CANCER

To the Editor:—What are the chances for a vesicoperineal fistula closing spontaneously? What, if anything, can be done if closure does not occur? This followed an abdominoperineal resection of a rectal carcinoma that was adherent to the bladder in the region of the trigon.

M.D., New York.

ANSWER.—In view of the fact that this patient had a resection for a cancer of the rectum that was adherent to the bladder, suspicions are naturally aroused concerning the possibility of recurrence, which may be a factor in the persistence of the vesicoperineal fistula. Therefore the first thing to do is to make a careful cystoscopic examination to determine whether or not the patient has cancer of the bladder. In addition the patient should have a careful examination in order to determine whether the cancer of the rectum has recurred. Naturally if the patient has had recurrence in loco and if he has cancer of the bladder, the cause of the fistula is self evident. If these two possibilities can be excluded, one might try to close the fistulous tract. A simple procedure that might be employed is one that is used in suprapubic fistulas, namely the use of a fulguration electrode. The fulguration may be repeated once or twice, but not oftener than once in four weeks. If the fulguration treatment fails to relieve the patient and if there are no signs of cancer, it might be well to discuss the advisability of operating on the patient. The nature of the operation will depend somewhat on what is found. If possible an attempt should be made to mobilize the bladder and close it by suture.

RHEUMATOID ARTHRITIS OR TUBERCULOSIS

To the Editor:—A man with a severe case of rheumatoid arthritis has a normal sedimentation rate. For one year I gave him autogenous vaccine, which seemed to improve his condition up to a certain point. This was followed by intravenous sulfur treatment, which apparently gave no results. Next I tried massive doses of vitamin D, which gave no results. Then I gave weekly doses of sodium iodide solution. Shortly after I began these treatments large fluctuating masses arose on the back of both wrists. These I considered to be panniculitis. On opening one of these masses I obtained a sterile serum and numerous little egg-shaped masses of fat. Would you consider this panniculitis and, if so, what do you consider the best treatment for it? Anything you may be able to advise me in the line of treatment for this patient will be greatly appreciated.

L. Jackson Lanich, M.D., Cumberland, Md.

ANSWER.—Severe rheumatoid arthritis with a normal sedimentation rate is most unusual, although it may occur. A more detailed clinical record would enable one to state with more certainty whether or not this diagnosis is correct, and therefore one would be in a much better position to advise as to further therapy. It is not surprising to learn that the patient did not respond to treatment with autogenous vaccine, intravenous sulfur or massive doses of vitamin D. This is the usual experi-

ence with these forms of therapy. The large fluctuating masses which finally appeared on the dorsum of the wrists were probably due to an associated tenosynovitis. The nature of the material aspirated is consistent with fluid obtained in some cases of rheumatoid arthritis. The small bodies may have been the rice bodies of tuberculosis. In order to be absolutely certain, one might reaspirate and inject some of the fluid into a guinea pig and thereby rule out tuberculosis. If they are not tuberculous in nature, conservative treatment is indicated.

AIRPLANE FLIGHTS AND DEAFNESS—OTOSCLEROSIS

To the Editor:—From time to time cases have been reported in which deafness has been relieved by an airplane flight. I am writing to inquire as to the rational explanation. 1. What type of deafness is relieved by this procedure? 2. If the barometric pressure is a factor, just how does it operate? 3. Is relief obtained through ascent or descent in the airplane? 4. Are surgical measures such as endaural fenestration to be generally recommended for middle ear deafness? I would appreciate any additional information or references with which you might supply me in regard to the treatment and prognosis in cases of otosclerosis. M.D., Tennessee.

ANSWER.—1. Presumably deafness due to obstructions of the eustachian tubes.

2 and 3. By increasing air pressure on descent, air could be forced into closed eustachian tubes or the rarefied air on ascent could allow air under greater pressure in middle ears to escape through the eustachian tubes. The former would be comparable to performing the Valsalva experiment; the latter is comparable to the creating of artificially lowered pressure into the nasal chamber by forcibly drawing air into the nostrils.

4. Only when the ears are dry, the nerve function and general physical condition good and the patient prefers a surgical operation to wearing a modern electrical hearing aid.

In cases of otosclerosis the prognosis is bad. The treatment can be satisfactorily outlined only by a competent otologist, under whose direction the patient should place himself. The use of an electrical hearing aid and lip reading are recommended.

BRADYCARDIA IN JAUNDICE

To the Editor:—I should like to know the explanation for the bradycardia present in clinical jaundice. M.D., Michigan.

ANSWER.—Bradycardia as a result of jaundice has been observed for many years but there is still no clearcut explanation for it. Many theories have been advanced and later rejected. At the present time the most widely accepted explanation predicates the bradycardia resulting from vagal stimulation due to the presence of bile salts in the blood. This explanation has some experimental backing. Injection of bile salts into the blood of young dogs will produce bradycardia but a similar effect is often lacking in older animals. Another hypothesis has to do with the combination of bile salts with calcium, thus reducing the irritability of the heart muscle.

Neither of these nor any other theory has been definitely proved.

CHOICE OF MATERIAL IN ARTIFICIAL LIMB

To the Editor:—In supplying a patient (an adult aged 21) with an artificial leg, is one made of wood or one made of airplane metal or of so-called fiber preferred? M.D., Connecticut.

ANSWER.—Surgeons who have had wide experience in the fitting of artificial limbs do not agree in all instances with regard to the choice of materials for the manufacture of such legs. Needless to say, manufacturers of each of the three types of limbs mentioned can supply rather impressive arguments tending to show that the material which they may happen to use is the most desirable. A metal or fiber leg cannot be altered as easily as can a wooden leg. There is little difference in the weight when the leg is completed. If the patient works outdoors in varying temperatures the metal leg will become chilled much more quickly, as it is a better conductor than either the wooden or fiber limb. The socket for a metal or fiber leg is made; by stamping it out. If the model and the measurements are absolutely accurate from the beginning, this is of course quite satisfactory. On the other hand it is frequently necessary to make some slight alterations in order to provide a more perfect fitting, and changes cannot be made so easily in the case of the metal or the fiber leg. The argument has also been presented that the polished more neatly and more quickly. It is believed that the artificial leg made of wood is to be preferred for the average patient.

SMALLPOX VACCINATION ON BACK

To the Editor:—Is it recognized as good routine practice to vaccinate babies for smallpox on the back? If so, in what region should the child be vaccinated? I would appreciate an early reply. M.D., Wyoming.

ANSWER.—It is not recommended generally as good routine practice to vaccinate babies on the back for smallpox. When vaccination is done on the back, a site high up over the left scapula is sometimes chosen. Vaccinations in this locality are seen more often probably on European women than on women in this country. It seems likely that vaccinations on the shoulder posteriorly are no more objectionable than vaccinations on the leg. Ordinarily the area above the insertion of the left deltoid is given preference.

ANTIRABIC TREATMENT AND RAT BITE

To the Editor:—A 3 year old boy was bitten several times by a rat. He was taken to the hospital and under gas-oxygen anesthesia the wounds were cauterized carefully with fuming nitric acid. Would you advise vaccinating him against rabies? M.O., Massachusetts.

ANSWER.—The rat, like other mammals, is susceptible to rabies. If the dictum "safety first" is to obtain in such cases as the one mentioned the patient would have to be given antirabic treatment.

SULFAPYRIDINE AND PNEUMONIA

To the Editor:—The answer to the question about sulfapyridine and prophylaxis of pneumonia (The Journal, April 27, p. 1689) should not pass unchallenged. While the first sentence of the reply is valid, it hardly seems wise, in the light of present knowledge, to state that the "signs and symptoms of an actual involvement of the bronchi and lungs" constitute an indication for treatment with sulfapyridine. It is not only "a good practice" but a rigid necessity to attempt to determine the cause of the infection before treating it. It is highly doubtful that "sulfapyridine now constitutes the sheet anchor in the treatment of acute infectious pulmonary disease." If the statement were limited to acute pulmonary disease caused by pneumococci or hemolytic streptococci it would be more in keeping with established facts. In my recent experience (Arch. Int. Med. 65:138 [Jan.] 1940) a form of pneumonia caused by an agent other than these bacteria was more prevalent than pneumococcal or streptococcal pneumonia. Sulfapyridine was found to be of no value in this type of infection and actually increased the discomfort of the patient. In certain cases, however, it is admittedly difficult to decide whether or not to use the drug. For example, if pneumococci of certain types (I, II, III, V, VII, VIII or XIV) are present in the sputum in cases of typical pneumonia it may be difficult to decide whether they are actually causing pneumonia or are potential invaders. In such circumstances the drug should probably be given the benefit of the doubt and given the drug. Until further facts are known, the decision rests largely on accurate observations and good judgment. At any rate there is of present no justification whatever for the routine use of sulfapyridine for the prevention of pneumonia. In the same issue of The Journal, page 1605, mention of pneumonia. In the same issue of The Journal, page 1605, Brown, Thornton and Wilson state that "the range between adequate blood concentrations [of sulfapyridine] and those which carry an unwarrantable risk of serious toxicity has been shown to be so narrow as to provide justification for a more conservative approach to the chemical treatment of pneumonia and to constitute a valid argument against the indiscriminate substitution of sulfapyridine for sulfanilamide in nonpneumococcal infections." Hobart A. Reimann, M.D., Philadelphia.

FRIGIDITY IN WOMEN

To the Editor:—Under the title "Frigidity in Women" in the May 11 issue of The Journal there is a criticism by Dr. A. L. Walborst (p. 1952) of the answer to Dr. Dunn's inquiry on March 23, page 1100. Dr. Walborst says: "The answer to Dr. Dunn's inquiry regarding frigidity in women fails to mention a form of frigidity which may be considered constitutional and perhaps hereditary." He then describes a case and says in the last paragraph: "At the examination it was found that there was no response whatever at the clitoris or in the vagina either to manual sensation whatever or the electric current. She was absolutely anesthetic in manipulation or the electric current. She was absolutely anesthetic in those regions." This condition is, however, fully described in the original answer (third paragraph) as follows: "There is another form of frigidity due to an organic condition in women, namely partial or complete sexual anesthesia in the vaginal mucous membrane. This condition has been described by Huhner (The Diagnosis and Treatment of Sexual Disorders in the Male and Female Including Sterility and Impotence, Philadelphia, F. A. Davis Company). One must have experience however in making this diagnosis, as different portions of the female genital tract have different degrees of sensitivity." Max Huhner, M.D., New York.

"GATCH" BED

To the Editor:—With regard to the query on page 1579 of The Journal for April 20 as to the meaning of the term "gatch" in connection with hospital beds, there are two schools of thought on this subject. The response in The Journal is representative of one. The other is conditioned on an article by Dr. W. D. Gatch in the Annals of Surgery 49:410, 1909, with one illustration of the principle. The title of the article is "The Sitting Posture: Its Postoperative and Other Uses, with a Description of a Bed for Holding a Patient in This Position."

Ramsay Spillman, M.D., New York.

Medical Examinations and Licensure

COMING EXAMINATIONS NATIONAL BOARD OF MEDICAL EXAMINERS SPECIAL BOARDS

Examinations of the National Board of Medical Examiners and Special Boards were published in THE JOURNAL, June 15, page 2407.

STATE AND TERRITORIAL BOARDS

ALASKA: Juneau, Sept. 3. Sec., Dr. W. W. Council, Box 561, Juneau.

ARIZONA: Phoenix, July 2-3. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

CALIFORNIA: Oral examination (required when reciprocity application is based on a state certificate or license issued ten or more years before filing application in California), Los Angeles, July 15. Written examination. Los Angeles, July 15-18. Sec., Dr. Charles B. Pinkham, 1020 N. St., Sacramento.

CONNECTICUT: Written. Hartford, July 9-10. Endorsement. Hartford, July 23. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. Homopathic. Derby, July 9-10. Sec., Dr. Joseph H. Evans, 1488 Chapel St., New Haven.

DELAWARE: Examination. Dover, July 9-11. Reciprocity. Dover, July 16. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, 229 S. State St., Dover.

DISTRICT OF COLUMBIA: Basic Science. Washington, Oct. 21-22. Sec., Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Basic Science. Gainesville, Nov. 1. Applications must be on file not later than Sept. 16. Sec., Dr. John F. Conn, John B. Stetson University, De Land.

GEORGIA: Atlanta, June. Joint-Sec., Mr. R. C. Coleman, 111 State Dr. George C. Ruhland, 203 District Bldg., Washington.

IDAHOO: Boise, Oct. 1. Dir., Bureau of Occupational License, Mr. H. B. Whittlesey, 355 State Capitol Bldg., Boise.

ILLINOIS: Chicago, June 25-27. Superintendent of Registration, Mr. Lucien A. File, Springfield.

IOWA: Basic Science. Des Moines, July 9. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MAINE: Augusta, July 2-3. Sec., Dr. Adam P. Leighton, 192 State St., Portland.

MASSACHUSETTS: Boston, July 9-11. Sec., Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Basic Science. Detroit, June 28-29. Pres., Dr. R. C. Houston, East Lansing.

MISSISSIPPI: Jackson, June 26-27. Asst. Sec., Dr. R. N. Whitfield, Jackson.

MONTANA: Reciprocity. Helena, Sept. 30. Written. Helena, Oct. 1-2. Sec., Dr. S. A. Cooney, 216 Power Block, Helena.

NEBRASKA: Basic Science. Lincoln, Oct. 1-2. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, 1009 State Capitol Bldg., Lincoln.

NEVADA: Reciprocity with oral examination. Aug. 5. Sec., Dr. Fred M. Anderson, 215 N. Carson St., Carson City.

NEW MEXICO: Santa Fe, Oct. 7-8. Sec., Dr. Le Grand Ward, 133 Sena Plaza, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 24-27. Chief, Bureau of Professional Examinations, Mr. Herbert J. Hamilton, 315 Education Building, Albany.

NORTH DAKOTA: Grand Forks, July 2-5. Sec., Dr. G. M. Williamson, 445 S. Third St., Grand Forks.

OREGON: Basic Science. July 6. Sec., State Board of Higher Education, Mr. Charles D. Byrne, University of Oregon, Eugene.

PENNSYLVANIA: Written. Philadelphia and Pittsburgh, July 9-11. Bed-side. Philadelphia, July 12-13. Dir., Bureau of Professional Licensing, Dr. James A. Newpher, 358 Education Bldg., Harrisburg.

PUEBLO RICO: San Juan, Sept. 3. Sec., Dr. O. Costa Mandry, Box 3854, Santurce.

RHODE ISLAND: Providence, July 10-11. Sec., Division of Examination, Dr. Robert M. Lord, 366 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 25. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

SOUTH DAKOTA: Medical. Rapid City, July 16-17. Dir., Medical Licensure, Dr. J. F. D. Cook, Pierre.

UTAH: Salt Lake City, June 24-26. Dir., Department of Registration, Mr. G. V. Billings, 324 State Capitol Bldg., Salt Lake City.

WASHINGTON: Basic Science. Seattle, July 11-12. Medical. Seattle, July 15-17. Sec., Department of Licenses, Mr. Nelson N. Vaughn, Olympia.

WEST VIRGINIA: Huntington, July 1-3. Sec., Public Health Council, Dr. Arthur E. McClue, State Capitol, Charleston.

Iowa March Report

Mr. H. W. Grefe, director, Division of Licensure and Registration, reports the written examination held at Des Moines, March 4-6, 1940. The examination covered eight subjects and included 100 questions. An average of 75 per cent was required to pass. Seven candidates were examined, five of whom passed and two failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Chicago College of Medicine and Surgery.....	(1917)		84.9
Rush Medical College.....	(1939)		85*
Tufts College Medical School.....	(1930)		85.3
Creighton University School of Medicine.....	(1938)		83.3
Medizinische Fakultät der Universität Wien.....	(1935)		88.9
School	FAILED	Year Grad.	Number Failed
Medizinische Fakultät der Universität Wien.....	(1935)		1
Rheinisch-Friedrich-Wilhelms-Universität Medizinische Fakultät, Bonn.....	(1920)		1

Twelve physicians were licensed by reciprocity and four physicians were licensed by endorsement from January 31 through March 18. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Arkansas School of Medicine.....	(1935)		Arkansas
Northwestern University Medical School.....	(1934)		Illinois
University of Kansas School of Medicine.....	(1938)		Kansas
University of Maryland School of Medicine and College of Physicians and Surgeons.....	(1924)		Maryland
University of Michigan Medical School.....	(1924), (1935)		Michigan
St. Louis University School of Medicine.....	(1922)		Missouri
Washington University School of Medicine.....	(1935), (1936, 2)		Missouri
Creighton University School of Medicine.....	(1925)		Nebraska
University of Rochester School of Medicine.....	(1934)		Maryland
School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
Yale University School of Medicine.....	(1936)	N. B. M. Ex.	
Duke University School of Medicine.....	(1934)	N. B. M. Ex.	
University of Toronto Faculty of Medicine.....	(1934)	N. B. M. Ex.	
Medizinische Fakultät der Universität Wien.....	(1935)	N. B. M. Ex.	

* License has not been issued.

Book Notices

Principles and Practice of Aviation Medicine. By Harry G. Armstrong, B.S., M.D., Capt., Medical Corps, United States Army. Cloth. Price, \$6.50. Pp. 496, with 86 illustrations. Baltimore: William Wood & Company, 1939.

Out of a tremendous personal experience and out of a review of more than 4,000 separate papers on the subject, Captain Harry G. Armstrong, of the Medical Corps of the United States Army and director of the Aero Medical Research Laboratory, has provided the medical profession with a textbook on the principles and practice of aviation medicine that constitutes an epoch in this field. Here is the one book which makes available to the physician advice necessary to examine pilots, to inform patients about flying and to take care of many of the illnesses and emergencies associated with modern aviation.

The book begins with an excellent statement on the history of aviation and on its medical aspects. Then comes a discussion of the flight surgeon and all the details involved in the selection of pilots, including references not only to the eye and the heart and to the ear, nose and throat, but also to the general physical examination and neuropsychic examination. A chapter on the care of the flier is followed by a discussion of fluids, gases, wind, ventilation, cold and other factors involved in flight, and of the effects of flight on the ear and on orientation. There is a discussion of air sickness and altitude sickness, of the effects of oxygen and atmospheric pressures, and then some highly technical discussions dealing with embolism and the effects of speed and acceleration. Some of the most interesting chapters for the general reader are the concluding discussions of the psychology of flight and of the new problems in sanitation raised by flight.

The book is well written and handsomely illustrated, and it has an excellent index.

Der Scharlach in Finnland bis einschliesslich 1900. Von Dr. Max Björkstén. Am. 16 November 1936 von Axel Wallgren und All Kroglus vorgelegt. Acta Societatis scientiarum fennicae, Nova series B, Tom I, N: o 3. Paper. Pp. 264. Helsingfors: Akademische Buchhandlung; Berlin: R. Friedländer & Sohn, 1938.

This extensive statistical study of scarlet fever in Finland covers a period of 139 years, beginning with 1762 and ending with 1900. As the author states, the diagnosis of scarlet fever during all of the eighteenth and first part of the nineteenth century was uncertain and official statistics are scanty; nevertheless, contemporary reports of the more severe epidemics furnish reasonably reliable information. The first recorded epidemic of scarlet fever in Finland occurred in September 1755. It resulted in the death of many children from 6 months to 5 years of age on the third to the seventh day of illness. Though the disease was epidemic, it did not impress observers as contagious in the sense of being transmitted by direct contact. The year by year statistics as to incidence of scarlet fever and death rate due to this disease in Finland, which occupy 150 pages, are summarized and tabulated in subsequent chapters. The prevailing weather conditions compared with the incidence of scarlet fever showed no relationship other

than the well known seasonal variation resulting in a maximum number of scarlet fever cases in January, a decrease in the late spring and a slight rise in late summer, continuing into the sharp rise of fall. The chapter on treatment describes the symptomatic therapy which prevailed and how, since this appeared ineffective, the people lost confidence in the power of medicine to influence the course of scarlet fever and frequently did not send for a doctor when the disease appeared. Since the period covered by this report ends with the year 1900, scarlet fever antitoxin was not yet available. After citing opinions to the contrary, the author concludes that scarlet fever must be considered a contagious disease. The monograph will not interest clinicians but it constitutes a definite contribution to public health statistics.

The Medical Staff in the Hospital. By Thomas Ritchie Ponton, B.A. M.D. Cloth. Price, \$2.50. Pp. 288. Chicago: Physicians' Record Company, 1939.

This book is written by a physician who by training and experience is thoroughly qualified to discuss the various phases and problems of hospital administration. It is a comprehensive and authoritative treatise which presents the full range of material that concerns the medical staff in its relation to the hospital service. The author has furnished information of a most practical nature and has succeeded in crystallizing in a single volume the subjects that are essential to the study of staff organization as a whole. There are nine chapters describing in a logical and systematic manner the obligations of the governing board and the medical staff, the relation of physicians to hospital service, the selection and appointment of staff members, the principles of staff organization, by-laws, rules and regulations, staff meetings, medical records, professional accounting and classification, and administrative relationship of the resident medical staff. There are many valuable illustrations, a list of standard forms relating to staff organization and medical records, and an ample index of ten pages. Addenda are included concerning the American Medical Association's standards for intern training, the Essentials in a Hospital Approved for Residencies in Specialties, the requirements for approval of internships in Canada, the minimum standards of the American College of Surgeons, by-laws, rules and regulations for various types of hospitals, a schedule of standing orders and sample regulations applicable to the intern staff. In this volume the author has described clearly the interrelationship of the medical and administrative personnel and the obligations of the staff in assuming control of medical policies and professional services. His emphasis on the qualifications and responsibilities of the medical staff is of particular significance, since these factors are of paramount importance in the care and welfare of patients. Staff physicians, superintendents, record librarians and others interested in hospital administration will find this book a valuable source of information and reference.

Sbornik trudov. Tom V: K pyatidesyatiletyu Tomskogo Gosudarstvennogo Meditsinskogo Instituta imeni V. M. Molotova, 1888-1938. [Collection of Works Celebrating 50th Anniversary of Tomsk Medical Institute (Named after V. M. Molotov). Volume V.] Cloth. Price, 9 rubles. Pp. 274, with illustrations. Tomsk: Izdatelstvo "Krasnoe Znamya," 1939.

This volume is a festschrift contributed to by the members of the Tomsk Institute of Physical Therapy and Balneology on the occasion of the fiftieth anniversary of the Tomsk Medical Institute. The subjects treated are those concerned with the effect of diathermy, iontophoresis and other physical therapeutic procedures in various disease states. The contribution by Shpisman on diathermy treatment of chronic disease of the heart is worthy of comment because of its conservative attitude. Among the contraindications to this treatment the author lists valvular diseases of the heart with decompensation, coronary thrombosis, dilatation of the aorta accompanied by hypertension, myocarditis accompanied by serious vascular alterations, exophthalmic goiter, the tendency to pulmonary hemorrhages, and very high or markedly lowered blood pressure. Diathermy is indicated in chronic disease of the heart characterized by painful sensations and mild myocardial lesions of a dystrophic type. The beneficial effect of the treatment manifests itself in the relief of pain and in the improvement of the cardiac function. Thirty-seven and eight-tenths per cent of the author's patients were completely relieved of the pain. In 51.5 per cent considerable diminution of the pain was registered. Subjective improve-

ment was noted in 89.5 per cent. Extrasystoles of functional character disappeared as a rule, whereas extrasystoles as a result of an organic cardiac lesion were not influenced. Tachycardias and bradycardias of cardiac origin not complicated by grave irreversible lesions become regulated as a rule.

Health In Relation to Occupation. By H. M. Vernon, M.A., M.D. Cloth. Price, \$4.50. Pp. 355, with 50 illustrations. New York & London: Oxford University Press, 1939.

Heredity affects health through the inheritance of good physique and intelligence. Under the heading of social environment, nutrition is by far the greatest single influence on physical welfare, exceeding by a considerable margin parental care, housing, sanitation and other elements which depend fundamentally on wages. Occupation affects health in a great many direct and indirect ways. In any event, it is a particularly difficult assignment to dissociate the effects of these three factors one from the other. Nevertheless, Vernon feels it worth while to set up certain percentage relationships between these factors, tentatively at least, until further observation by him and others may suggest abandonment or further exploration of this method of evaluation. These, in substance, are a few of the author's reflections on a most interesting subject, which, at least in this country, receives far less consideration in medical publications than it deserves. This book refers mainly to British conditions, although the general recommendations and conclusions have a much wider application. In fact, it is mainly in England that good statistical data are available for compilation and review concerning the effects of work and economic status on health. The occupational mortality data, for example, as published in the Registrar General's Decennial Supplements have no close counterpart in other countries. Nowhere are there accumulations of data on sickness and occupation except where the work itself has been discovered as the direct etiologic agent. Vernon concludes that "The greatest single factor for the improvement of the nation's health is the provision of an adequate income for all members of society." To this expression the great majority of physicians in this country can voice substantial agreement.

The Health of the Chinese in an American City, San Francisco. J. C. Gelger, M.D., Emmett E. Sappington, M.D., Roslyn C. Miller and Ilda F. Welke, A.B., San Francisco Department of Public Health. Paper. Pp. 29. San Francisco, 1939.

This interesting and instructive report opens with a brief contrast of conditions in the Chinese section of San Francisco in 1870 and the changes that have been made in this section of the city since that time. During the ten year period ended in 1938 there has been a noticeable decrease in the birth rate among the Chinese. Among the tangible results of the efforts in the education of Chinese mothers is the increase in the number of those who have been hospitalized at the time of delivery. In 1929 only 20 per cent of births occurred in hospitals, whereas in 1938 there were 56 per cent, an increase of 180 per cent of birth in hospitals. As a contrast, 82 per cent of citywide births in 1929 were in hospitals and 92 per cent in 1938, an increase of 12 per cent. One of the major health problems in the Chinese area is tuberculosis, which is associated with crowded housing conditions and long working hours leading to fatigue. The pulmonary type accounted for 67 per cent of all cases of tuberculosis; 78 per cent of patients were under 25 years of age; of the families in which tuberculosis was found, 60.7 per cent of the heads of families had an income of less than \$70. Over the ten year period 1929-1938 there has been a constant decline in the Chinese general death rates. Citywide death rates have never reached the approximated 18.1 Chinese rate per thousand of population in 1929 and they have never declined to the low Chinese rate of 9.83 for 1938. The average age at death for the city was 52.4 years and for the Chinese 41.7 years in 1929. In 1938 the citywide average age at death was 58.3 years and for the Chinese 50.8 years. These and other changes noted in the report are attributed largely to the development of public health measures among the Chinese; however, it appears that even greater advances might have been recorded were it not for evidence that the Chinese, especially the early age groups, have greater susceptibility and less resistance to disease. This report is an encouraging evidence of some of the accomplishments possible through public health education and properly sustained public health administrative measures.

Love at the Threshold: A Book on Dating, Romance and Marriage. By Frances Bruce Strain. Cloth. Price, \$2.25. Pp. 349. New York & London: D. Appleton-Century Company, Incorporated, 1939.

The physician seeking a book which he can recommend for reading by boys and girls and young men and women can place confidence in this volume. It is comprehensive, practical, sensible and scientific. It is written in a sympathetic style which indicates the author's genuine interest in and wide acquaintance with personal problems of young persons, especially those having to do with relationships between the sexes on three principal levels with which the book deals, namely, dating, romance and marriage. The only objection which some physicians may have to the book would seem to be its somewhat excessive confidence in the rhythm theories as contraceptive methods, perhaps a bit too much optimism on the ease and safety of modern motherhood. The book deals with its three principal topics adequately and without overdoing the preaching attitude. It is the kind of book which a young woman whose opportunities for acquiring poise and social graces have not been too abundant may read with assurance and which the girl during courtship and approaching marriage may find a valuable guide. It is perhaps less suitable for boys than for girls, but even so the adolescent boy will find useful information in it. Parents who are being asked questions which they cannot answer, or parents whose answers are not acceptable to their own offspring, may find welcome corroboration and cooperation in the advice contained in this book.

Suchasna metodika zashchitvego farbuynnya nerviv metilenovoyu sin-koyu i inshimi farbnykamy. [By] O. V. Leontovich. [Present Day Methods of Vital Staining of Nerves with Methylene Blue and Other Stains.] Paper. Price, 3 krb. 50 kopecks. Pp. 88, with 4 illustrations. Kiev: Vydavnistvo Akademii Nauk URSR, 1939.

This is a monograph devoted to the discussion of the newer methods of supravital staining of nerve tissue. The silver methods of staining of Golgi and of Ramon y Cajal had a limited field according to the author. The Bielschowsky was an advance. It did not stain, however, all the neuroplasma, but only the primary nerve fibers. The pericellular elements were poorly stained and the neuroplasma of the nerve fibers barely demonstrated. The greater part of the monograph is devoted to the discussion of the newer methods of fixation and of supravital stains with methylene blue developed in the recent years in the Union of Soviet Socialist Republics. The work of the School of Vorobiev is discussed in considerable detail. The method enables the demonstration of the nervous system in its finest divisions. The newer methods of fixation permit preparations to be examined with the oil immersion lens. Sections of the thickness of from 0.25 to 0.5 mm. enable one to study innervation as it is rather than in reconstruction pictures. A fairly exhaustive biography on the subject is appended. The book is written in the Ukrainian and, contrary to the usual custom, does not contain a summary in any other language.

Hospital for the Ruptured and Crippled: A Historical Sketch Written on the Occasion of the Seventy-Fifth Anniversary of the Hospital. By Fenwick Beckman, M.D. With a foreword by Philip D. Wilson, M.D., Surgeon-in-Chief. Cloth. Price, \$3. Pp. 157, with 11 illustrations. New York, 1939.

As has often been stated, prior to 1863 philanthropists, public officials and the people as a whole did not show any real recognition of a social responsibility for those who were physically maimed. Throughout the United States not one single hospital specifically dedicated to the care of the crippled could be found. In that year, while the Civil War with all its horror was creating countless thousands of crippled individuals, the Hospital for Ruptured and Crippled was founded. This book consists of a fascinating history of the first seventy-five years of that institution. To some extent this record shows the influence which the Hospital for Ruptured and Crippled exerted throughout the United States on medical and surgical thought and the care of physically disabled individuals, from both the technical and the social point of view. Begun in the home of Dr. James Knight, with a small group of patients, this institution has provided for more than 800,000 individual men, women or children the benefits of care which could be rendered only by a skilled staff of doctors who were dedicating their lives to this special work. Many advances in orthopedic technic have had their origin within the walls of

this institution. In every section of the country may be found orthopedic surgeons who received their training as assistants to the staff of surgeons of the Hospital for Ruptured and Crippled. The volume contains many personal references and constitutes a record of achievements of many professional and lay individuals who worked faithfully that this institution might survive and fulfil its appointed function.

The Tools of the Chemist: Their Ancestry and American Evolution. By Ernest Child. Cloth. Price, \$3.50. Pp. 220, with 105 illustrations. New York: Reinhold Publishing Corporation, 1940.

This volume is a fascinating work which might well be duplicated in the field of medicine. It provides biographic data as well as the history of apparatus and materials used in the chemical profession. Here is the ancestry and development of balances, glassware, filter paper, rubberware and optical apparatus used by chemists. There are innumerable excellent illustrations in the forms of photographs, drawings and portraits.

Modern Marriage. Edited by Moses Jung. Cloth. Price, \$3.75. Pp. 420, with 37 illustrations. New York: F. S. Crofts & Co., 1940.

For the last six years the State University of Iowa has offered a course on modern marriage in which members of the entire faculty have participated. The course has been coeducational and has included both married and unmarried students. The discussions in the course have been exceedingly frank. In this volume the aspect of mental hygiene is discussed by John M. Dorsey of the University of Michigan, the biologic aspects by Dr. Andrew H. Woods of the department of psychiatry, the physical aspects by Dr. E. D. Plass of the department of obstetrics. The volume discusses as well legal aspects, economics, religion, art and intelligence. There is some discussion of contraception and premarital examinations. The book should prove not only interesting but extremely valuable to any intelligent adult who contemplates marriage. It should also be especially suggestive to physicians and teachers who may be charged with the duty of advice for those who do not wish to avail themselves of a volume of this type.

Men Against Madness. By Lowell S. Selling, M.D., Ph.D. Cloth. Price, \$3.50. Pp. 342, with 42 illustrations. New York: Greenberg, Publisher, 1940.

By a series of biographies and historical anecdotes Dr. Lowell Selling traces the development of our modern methods of treating diseases of the mind. It becomes quickly apparent that physicians recognized from the first the intimate relationship of mind and body, although there were innumerable tendencies toward separating the consideration of their disturbances. As long as human beings believe in magic, it was certain that mental conditions would be treated from the point of view of the magician. Then came Pinel, who struck the chains from the insane. Scientific progress was also inhibited to some extent by the charlatans, although these charlatans themselves did help to advance study of the mind. Prominent, of course, are Gall, who founded phrenology, and Mesmer, who developed animal magnetism. Coincidentally came the great discoveries of the scientists who dealt with the structure and function of tissues, psychologists and psychiatrists. The modern era culminates, of course, with the evolution from Charcot to Freud. From the time of Kraepelin and Freud psychiatry has advanced tremendously. The physician and the layman who wish to orient themselves in this field can do so pleasantly with this well written volume by Dr. Selling.

High Schools and Sex Education. By Benjamin C. Gruenberg, Special Consultant to U. S. Public Health Service. With the assistance of J. L. Kaukonen. United States Public Health Service, Federal Security Agency. Bulletin No. 75 revised. Paper. Price, 20 cents. Pp. 110. Washington, D. C.; Supt. of Doc., Government Printing Office, 1939.

This pamphlet is published by the United States Public Health Service to set forth a point of view with relation to how sex education had best be carried out. Acknowledging the necessity for primary sex teaching in the home and deploring the general lack of such teaching, the booklet postulates the theory that the school must do what the home fails to do. In the presence of such a Hobson's choice, the proposal set forth in the booklet should meet with general approval. The booklet is divided into three principal parts, exclusive of the foreword and introduction. Part one has to do with planning and organization in

the secondary schools, containing chapters on the province of the school, methods and supplementary devices, and teacher selection, preparation and development. Part two indicates how sex instruction can be integrated with various courses, including biology, general science, physiology and hygiene, physical education, home economics, social studies and English. There are four appendixes containing respectively a reading list for teachers and school officials, a reading list for students, information on pamphlets and visual aids, and a suggested outline of a course for teachers on sex education in secondary schools. The manual is a comprehensive and thoughtful presentation and should be useful for reference in any situation in which the problem of sex education in the schools is under consideration.

The Becoming of Oswald or Wake Up and Loaf. By Emmanuel Winters. Cloth. Price, \$1.50. Pp. 144. New York: Milestone Press, 1939.

This little satire purports to give a picture of the American with a superiority complex or what the author believes is a typical American. Oswald begins by being as timorous as Mr. Webster's "Gentle Soul" but he soon discovers that it is possible by reading Elbert Hubbard's Scrapbook and similar works to become a success. Oswald becomes successively a New Yorker, an architect, a doctor—that is to say, one of those laymen who are ready to prescribe for every one's illnesses—a materialist, a financier, a coin collector, a prophet and a revolutionary. Finally he becomes a real success by winning a \$50,000 prize in the Irish Sweepstakes.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Accident Insurance: Death from Typhoid Is Death Resulting from "Disease in Any Form."—The defendant company issued a policy of insurance providing stated benefits if the insured died "as a result, directly and independently of all other causes, of bodily injuries, effected solely through external, violent and accidental means, of which . . . there is a visible contusion or wound on the exterior of the body . . ." Under the policy no benefits were payable if death resulted directly or indirectly from "disease in any form." The insured contracted typhoid from drinking contaminated water and died. His beneficiary brought suit under the policy. A judgment of the trial court in favor of the insurance company was reversed by the Kansas City (Mo.) court of appeals and the company appealed to the Supreme Court of Missouri.

The death of the insured, contended the beneficiary, was clearly within the terms of the policy because the ingestion of the typhoid germs by the insured was accidental, the bacteria were external means producing violent injuries resulting in death, and the visible contusion or wound on the exterior of the insured's body required by the policy was present in cracked and "blackened" lips, which appeared after the inception of the disease and before death. The provision of the policy, it was further contended, excluding death from disease should be construed not to apply in this case because the disease followed or was incidental to accidental bodily injuries caused by the germs. But, said the Supreme Court, the terms of a contract of insurance must be taken in their plain, ordinary and popular sense. Under such a rule of construction the Supreme Court held that the beneficiary could not recover under the policy because of the provision denying liability if death resulted from "disease in any form." This provision is clear and unambiguous and cannot be construed to warrant a finding that typhoid is not a disease. The court was not impressed with the beneficiary's contention that the ingestion of the bacteria caused an injury which in turn resulted in the disease and that therefore death was due to injury and not to disease and so was not within the exclusion clause. Common understanding, said the court, forces the conclusion that typhoid, the disease, was the proximate cause of death. Any bodily injury suffered by the insured was an incident of the disease.

To uphold the beneficiary's contention would be to decree that all death from disease would be covered by the policy because a normal person would not intentionally expose himself to bacteria which causes disease and so the contracting of disease would always be accidental. There would then be no difference between an accident and a health insurance policy. However, the ordinary man draws a clear distinction between bodily injury and disease. The court concluded, therefore, that because of the exclusion clause here discussed the policy did not cover death resulting from typhoid, which is a disease not brought about by accidental bodily injuries.

Accordingly, the judgment of the appellate court was reversed and, in effect, judgment was rendered in favor of the insurance company.—*State ex rel. Prudential Ins. Co. of America v. Shain (Mo.)*, 127 S. W. (2d) 675.

Malpractice: Gas Gangrene Following Injury to Hand.—The plaintiff injured his left hand while cutting brush. He engaged the defendant physician to treat him, but after a few treatments he employed other physicians to attend him instead. The latter physicians extracted from his hand two or three splinters, incised the hand in several places and inserted gauze drains. Within two or three days after they commenced to treat the plaintiff they discovered that the wound had become infected. They diagnosed the condition as gas gangrene and thereupon amputated the patient's left hand and arm at a point above the elbow. Subsequently the patient sued the defendant physician for malpractice. From a judgment in favor of the plaintiff the physician appealed to the court of civil appeals of Texas, San Antonio.

The burden rested on the plaintiff, said the court of civil appeals, to prove that negligence on the part of the defendant in his treatment of the patient was the proximate cause of the infection which necessitated the amputation of his "hand." In the judgment of the court, the plaintiff had failed to do so. The evidence adduced showed that the defendant examined the plaintiff's hand under a fluoroscope to detect any possible fracture, probed the wound and extracted therefrom a splinter, washed the wound with an antiseptic and approximated the edges of the wound with "a clamp." It was not shown that the infection which necessitated the amputation was in any way caused by negligence on the part of the defendant. One of the medical witnesses for the plaintiff, in answer to a hypothetical question, did testify that the treatment rendered was negligent but on cross examination he admitted that he would have used the same treatment as the defendant had used. All the experts testified that the infection could have occurred regardless of the treatment administered to the wound. The fact that the wound became infected could not be said to be evidence of want of care on the part of the defendant in his treatment of the injury. Since the court was of the opinion that the cause of the infection in this case was known only to those trained in medical science, it concluded that the trial court had erred in overruling the defendant's motion for a directed verdict in his favor and in submitting the cause to the jury.

Accordingly, the judgment of the trial court in favor of the plaintiff was reversed and the cause remanded for a new trial.—*Kootsey v. Lewis (Texas)*, 126 S. W. (2d) 512.

Society Proceedings

COMING MEETINGS

- American Physiotherapy Association, New York, June 23-28. Mrs. Eloise T. Landis, 2068 Adelbert Rd., Cleveland, Secretary.
- American Urological Association, Buffalo, N. Y., June 24-27. Dr. Clyde L. Deming, 789 Howard Ave., New Haven, Conn., Secretary.
- Maine Medical Association, Rangeley Lakes, June 23-25. Dr. F. R. Carter, 22 Arsenal St., Portland, Secretary.
- Medical Library Association, Portland, Ore., June 25-27. Miss Anna C. Holt, 25 Shattuck St., Boston, Secretary.
- National Medical Association, Houston, Tex., Aug. 12-16. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.
- Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
- West Virginia State Medical Association, White Sulphur Springs, July 29-31. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

19:385-512 (April) 1940

- *Cardiac Changes in Pregnancy Unrelated to Usual Etiologic Types of Heart Disease. W. A. Sodeman, New Orleans.—p. 385.
- Relation of Longitudinal Tension of Artery to Preanacrotic (Breaker) Phenomenon. J. Erlanger, St. Louis.—p. 398.
- Roentgenologic Demonstration of Left Ventricular Hypertrophy. G. Levene and R. M. Lowman, Boston.—p. 401.
- Experimental Methods for Producing Chronic, Progressive, Coronary Arterial Occlusion. J. J. Thornton and F. R. Mautz, Cleveland.—p. 404.
- Significance of Vascular Hyperreaction as Measured by Cold-Pressor Test. E. A. Hines Jr., Rochester, Minn.—p. 408.
- Cardiometer, Instrument for Detection of Cardiac Enlargement by Direct Correlation of Transverse Diameter of Heart with Body Weight and Height. W. W. Fray, Rochester, N. Y.—p. 417.
- Study of Cardiovascular Disease in Charleston, S. C., Based on Necropsy Statistics. T. M. Peery, Washington, D. C., and S. M. Langsam, New York.—p. 424.
- Haemophilus Parainfluenzae Endocarditis: Report of Two Cases and Review of Literature of Influenzal Endocarditis. E. B. Craven Jr., Lexington, N. C.; Mary A. Poston and E. S. Orgain, Durham, N. C.—p. 434.
- *Roentgenokymogram in Myocardial Infarction: I. Abnormalities in Left Ventricular Contraction. M. L. Sussman, S. Dack and A. M. Master, New York.—p. 453.
- *Id.: II. Clinical and Electrocardiographic Correlation. S. Dack, M. L. Sussman and A. M. Master, New York.—p. 464.
- Seasonal Incidence of Coronary Occlusion in a Mild Climate: Study Based on Autopsy Material. H. J. Hoxie, Los Angeles.—p. 475.

Cardiac Changes in Pregnancy Unrelated to Heart Disease.—Sodeman observed seventy-three apparently normal patients during pregnancy to ascertain what cardiac changes resulted from the gravid state. Palpitation or dyspnea or both developed in thirty-one and was sufficiently severe to constitute a complaint. Choking or "smothering" at night was complained of by two. Soft systolic murmurs were common and, at times, were markedly affected by posture. In thirty instances, soft, short, transient, systolic pulmonary murmurs were heard. Of the more constant systolic murmurs, eighteen were both apical and basal, six were apical alone and eight were basal alone. A diastolic murmur was heard at the aortic area in one case. Gallop rhythm occurred eight times, and a definite accentuation of the pulmonary second sound thirty-one times. Accentuation of the aortic second sound occurred twice and splitting of the mitral first sound five times. The heart was definitely beyond the midclavicular line in twelve cases, confirmed by x-ray examination in ten. Tachycardia was recorded graphically in forty-seven cases and ectopic beats in four. Edema of the ankles was present in twenty-eight. The blood pressure of every patient remained within the normal range. In seven of the seventy-three patients symptoms and signs sufficient to suggest heart disease developed in the last trimester. In five of these, palpitation and dyspnea on exertion were accompanied by accentuation of the pulmonary second sound, extension of the left border of cardiac dullness beyond the midclavicular line and systolic apical murmurs, and in two by basal systolic murmurs, edema of the ankles and coarse rales at the bases of both lungs. Numerous ventricular extrasystoles occurred in one instance and sensations of suffocation in the eighth month awakened another patient on several occasions, causing her to sit up. The symptoms of two patients were extreme. The dyspnea of one became so severe that the patient was unable to carry on her usual household duties. The other's symptoms were similar but were accompanied by marked apprehension, a coarse tremor of the hands, tachycardia and evidence of vasomotor instability. The arterial pressure was within the normal range in all patients. In each instance delivery was uneventful, and examination during the puerperium disclosed that practically all the signs and symptoms

had disappeared. So-called gestatory heart disease must be differentiated from organic heart disease as patients with the former type require no special treatment. The inclusion of patients with gestatory heart "disease" in the organic group not only causes them unnecessary expense, inconvenience and worry but exposes them unnecessarily to added obstetric risks.

Roentgenokymogram in Myocardial Infarction.—Sussman and his colleagues describe the kymographic abnormalities in serial records of 200 typical cases of coronary artery occlusion followed by myocardial infarction and correlate them with the various stages of the disease. In 75 per cent of the cases the following characteristic abnormalities were found: (1) diminution or absence of pulsation in a localized segment of the left ventricular contour, (2) systolic expansion, either total or partial, over one or more segments of the lower left contour and (3) diastolic splintering shown by marked irregularities in diastole. Equivocal changes included generalized diminution in pulsation, slight localized diminution in pulsation, slight irregularities in diastole and partial expansion not definitely in early systole. The early changes of myocardial infarction were studied in thirty-two patients on whom roentgenokymograms were obtained during the first or second week following the onset of coronary occlusion. In most of these cases serial roentgenokymograms were obtained at weekly or biweekly intervals. In ten of the thirty-two cases systolic expansion appeared as early as the first or second week. This persisted during the following three to eight weeks. Moderate to marked diminution in pulsation was present during the early stages in twelve. In nine the initial roentgenokymogram was normal or showed equivocal changes. Although the pulsations in the early stages were often normal or only slightly abnormal, in the majority of cases they became progressively impaired during the subacute stage, when complete or partial systolic expansion may be noticed in the fourth to the fifth week. Serial roentgenokymograms in a few cases showed that the cardiac contractions remained normal for two or three months, at the end of which time definite abnormalities finally became evident. This suggests that both softening of the ventricular wall by acute myomalacia and replacement fibrosis, with thinning, may be associated with abnormal ventricular contraction. Definite myocardial infarction produces no kymographic changes in a minority of cases. The incidence and type of kymographic abnormalities were the same in cases of recent and of old myocardial infarction. The incidence of abnormalities at intervals of from one to four years after recovery was approximately the same as during the acute stage of coronary occlusion. Of twenty-two patients examined from four to twelve years after the attack, sixteen still showed evidence of previous infarction in the form of complete or partial systolic expansion. Abnormalities in pulsation during the acute stage of the attack persisted, became more definite in the chronic stage or became less marked. Of thirty-four cases systolic expansion was observed in twenty cases during the acute or subacute stage of the attack, but it persisted in only eleven of these. Three follow-up roentgenokymograms were completely normal after recovery, and in six the systolic expansion regressed to diminution of pulsation with slight irregularities. Healing of the myocardial infarct may be followed by complete or partial disappearance of the abnormalities in ventricular contraction; this probably occurs when healing is associated with little residual fibrosis, which is a common postmortem observation.

Roentgenokymographic, Clinical and Electrocardiographic Correlation.—Dack and his associates correlated the roentgenokymographic changes, electrocardiographic changes and clinical course in 200 cases of acute and old myocardial infarction secondary to coronary artery occlusion. The kymogram was usually normal when the attack was mild and the recovery good. Regression or complete disappearance of kymographic abnormalities was a good prognostic sign. The kymographic abnormalities were usually marked when the attack was severe and the recovery incomplete. The roentgenokymogram and the electrocardiogram supplement each other, as one may be normal and the other abnormal, or vice versa. The roentgenokymogram should prove to be of most diagnostic value during the acute stage, when the clinical course and electrocardiogram are not typical of coronary artery occlusion,

and following recovery, when the characteristic signs of previous infarction have disappeared. Posterior infarction produced abnormalities in the postero-anterior kymogram as often as did anterior infarction. At autopsy, systolic expansion in four cases could be correlated with a large area of infarction or thinning of the left ventricle. Diminution of pulsation occurred in one case in which there was a small posterior infarct, and in another in which there was diffuse myofibrosis.

American Journal of Cancer, New York

38:463-630 (April) 1940

- *Hormone Etiology of Breast Cancer. W. Cramer.—p. 463.
- *Ovarian Dysgerminoma. S. Sailer, Charleston, S. C.—p. 473.
- Influence of Roentgen Radiation on Heterologous and Homologous Transplantation Immunity. J. Clemmensen, Leeds, England.—p. 483.
- Endocrine Glands in Experimental Cancer Induced by Benzpyrene: Study of Role of Endocrine Glands in Pathogenesis of Tumors. L. T. Larionow, Leningrad, Soviet Union.—p. 492.
- Susceptibility to Follicular Hormone and Disposition to Mammary Cancer in Female Mice. P. J. van Gulik and R. Korteweg, Amsterdam, Netherlands.—p. 506.
- Host Constitution and Incidence of Chemically Induced Tumors. W. F. Dunning and M. R. Curtis, New York.—p. 516.
- Action of Short Radio Waves on Tissues: III, Comparison of Thermal Sensitivities of Transplantable Tumors in Vivo and in Vitro. H. J. Johnson, Newcastle-on-Tyne, England.—p. 533.
- Metabolism of Human Endometrium, with Special Reference to Adenomyosis and Hyperplasia of Endometrium. M. L. Dreyfuss, New York.—p. 551.
- Production of Endometrial Moles with Steroid Hormones. H. Selye and S. Friedman, Montreal.—p. 558.
- Latent Choriocarcinoma. A. F. Brown, W. Snodgrass and O. B. Pratt, Los Angeles.—p. 564.
- Comparison of Fungistatic Properties of Enanthalddehyde and Enanthic Acid as Related to Their Possible Anticarcinogenic Effect. C. Hoffman, T. R. Schweitzer and G. Dalby, New York.—p. 569.

Hormone Etiology of Breast Cancer.—Cramer summarizes the results of his investigations on mice as follows: A high susceptibility to mammary cancer is associated in two strains of mice with a process of degeneration in the adrenal medulla. This susceptibility can be diminished by removing the supply of the adrenal cortical hormone or by applying an excess of an anterior pituitary substance. From this it is apparent that the susceptibility to mammary cancer is not a fixed and unalterable quality residing within the organism. It does not reside entirely—if at all—within the breast. It is conditioned partly by a disturbance of the endocrine balance. The estrogenic ovarian hormone acts as the carcinogenic agent and the synergic adrenocortical hormone without estrogen cannot exert its full activity. On the other side are the two hormones antagonizing the effects of the ovarian estrogen; the thyrotropic hormone of the anterior pituitary and a hormone from the adrenal medulla. The gap between a fully developed mamma and a cancerous mamma indicates that the process of carcinogenesis is not simply a continuation of development. The two are discontinuous. A new event—as yet unknown—takes place. The development of cancer in the mamma can be brought about by disturbing the endocrine balance in a variety of ways. In one the carcinogenic agent—the ovarian estrogenic hormone—is increased. This is the method used experimentally. When this is done the organism tries to restore the endocrine balance by a degenerative process in the adrenal cortex which tends to diminish the synergic hormone of the cortex and by an increased functional activity of the anterior part of the pituitary which secretes the antagonistic hormone. If the carcinogenic agent—the estrogen—is not increased, cancer may develop in the mamma as a result of a sensitization of the organism to the action of the ovarian hormone by a decrease in its antagonists. This is brought about in the two inbred strains of mice by a spontaneous degenerative process in the adrenal medulla or a pathologic condition in the anterior part of the pituitary may bring about dysfunction of the acidophil cells and thus weaken an antagonistic hormone. The existence of such pathologic conditions of the pituitary in association with mammary cancer has been recorded in the human being. Conversely, a resistance to the development of cancer in the mamma can also be brought about in a variety of ways. The carcinogenic agent may be diminished by ovariectomy; the effect of this procedure in delaying or preventing mammary cancer has been demonstrated. The same effect can be produced by diminishing the susceptibility by removal of the

synergistic adrenal hormone or by furnishing an 'excess of antagonistic anterior pituitary hormone. It is not known what factors switch over the carcinogenic action of estrogens from the mamma to other organs. The conception of an endocrine imbalance as an etiologic factor in cancer of the mamma, and probably also of the uterus, should serve as a useful guide for clinical investigations. There is now a possibility of treating precancerous conditions of these two organs by appropriate hormones. The uterine cervix being accessible seems to offer itself as a most likely object for such an investigation. It would be desirable to search for clinical features resulting from slight endocrinologic abnormalities which characterize women with an inherited susceptibility to mammary and to uterine cancer. If such susceptibility could be recognized clinically before the disease manifests itself, the endocrinologic abnormalities on which such susceptibility is based could be corrected, and these two numerically important types of cancer might be prevented.

Ovarian Dysgerminoma.—Sailer reports five cases of ovarian dysgerminoma in women aged from 10 to 21 years. Four of the tumors occurred in the right ovary and one in the left. This group represents an incidence of 6.1 per cent among a series of eighty primary malignant ovarian tumors. The predilection of the tumor for the right ovary and the age incidence appear characteristic of the dysgerminomas. The microscopic appearance, including the number of mitoses, appears to be an unreliable indicator of growth potentiality. All tumors were extremely cellular and showed a striking resemblance to testicular seminomas. One tumor, in a Negro girl of 10, recurred a year following removal, with extensive pelvic, peritoneal and probable lung metastases. Death occurred one year and eight months after removal of the primary growth. Three other patients are living and well without evidence of tumor, three, four and six years respectively after operation. None of those still living received roentgen therapy either before or after operation. One patient bore a child two years prior to removal of the tumor and had two normal full term pregnancies two and four years respectively following operation. The physiologic significance of the nests of granulosa cells among the dysgerminoma cells awaits further biochemical study.

American J. Obstetrics and Gynecology, St. Louis

39:549-732 (April) 1940. Partial Index

- Limitation of Human Reproduction: Therapeutic Abortion. H. C. Hesselstine, F. L. Adair and M. W. Boynton, Chicago.—p. 549.
- Study of Possible Significance of Vaginal Smear as Additional Factor in Diagnosis of Incomplete Abortion. P. F. Fletcher, St. Louis.—p. 562.
- *Management and Treatment of Habitual Abortion, with Especial Emphasis of Use of Progesterone. R. E. Campbell and E. L. Sevringhaus, Madison, Wis.—p. 573.
- *Spontaneous Pneumothorax of the Newborn Infant. E. J. DeCosta, Chicago.—p. 578.
- Transverse Abdominal Incisions in Pelvic Surgery: Report of 700 Cases. G. W. Hunter, Fargo, N. D.—p. 593.
- Searlet Fever in Obstetrics: Report of Epidemic. A. W. Diddle, R. E. Trussell and E. D. Plass, Iowa City.—p. 608.
- Treatment of Bacteremias with Sulfanilamide. J. R. Reinberger, Memphis, Tenn.—p. 618.
- Further Studies on Androgen Therapy of Gynecologic Disorders. J. P. Greenhill and S. C. Freed, Chicago.—p. 636.
- Induction of Labor with Small Doses of Powdered Ergot: Preliminary Report. C. J. Ehrenberg, O. F. Robbins and J. A. Haugen, Minneapolis.—p. 653.
- Premature Infant Mortality: Statistical Study of Factors Influencing Mortality in 453 Infants Weighing Less Than 2,500 Gm. R. M. Grier and H. O. Lusk, Evanston, Ill.—p. 669.
- Experiences with Placental Blood Bank. W. M. Heyl, Philadelphia.—p. 679.
- Intermenstrual Pain: Surgical Condition. E. F. McLaughlin, Philadelphia.—p. 684.
- Transperitoneal Approach in Management of Inaccessible Vesicovaginal Fistulas. W. C. Danforth, Evanston, Ill.—p. 690.
- Focal Infections in Pregnancy. T. D. Paul and C. E. Galloway, Evanston, Ill.—p. 694.
- Six Year Cure of Cancer of Vulva in 22 Year Old Patient. N. V. Ludwick, Philadelphia.—p. 716.

Management and Treatment of Habitual Abortion.—Campbell and Sevringhaus used progesterone and corpus luteum extracts in the treatment of thirteen instances of habitual abortion. Each patient, with one exception, had aborted twice or more and did not have a living child. The exception was that of a woman who had a living child but aborted twice since its

birth. Following treatment eleven women went to term and had spontaneous deliveries. One patient aborted at the fourth month and the other at the sixth month of pregnancy. Each patient was carefully checked by physical examination and laboratory study to exclude every possible causative factor as related to habitual abortion. The eleven babies were not excessive in size and presented no fetal abnormalities. The progesterone dosage used varied considerably in the several cases and was quite high in the years before commercial preparations were available. The authors feel that from 1 to 2 rabbit units weekly is a safe dose for therapeutic effects. Others have used comparatively small doses. However the dosage necessary to prevent abortion is still empirical.

Spontaneous Pneumothorax in Newborn Infants.—DeCosta encountered spontaneous pneumothorax in two newborn infants. He suggests that it is a clinical entity which probably occurs frequently and is overlooked. No papers on the subject are to be found in obstetric literature, although references in the pediatric and roentgenologic literature do appear. A review of the literature reveals sixty-seven cases. Only forty-six of these have been directly associated with birth. In one of the author's cases subcutaneous emphysema and pneumoperitoneum were present. There appear to be two clinical types of pneumothorax in the newborn: one arises suddenly, demanding prompt treatment, and the other is more gradual and less severe with good prognosis irrespective of treatment. Resistance to the flow of air through the tracheal catheter during insufflation is suggestive of pneumothorax. The danger of producing pneumothorax by improper insufflation is stressed. Obstetricians should be mindful of the possible occurrence of pneumothorax, especially when artificial respiration has been employed.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.
43:469-628 (April) 1940

- *Bronchiogenic Carcinoma. L. F. Craver, New York.—p. 469.
Metastatic Neoplasms: Clinical and Roentgenologic Study of Involvement of Skeleton and Lungs. J. W. Turner, Springfield, Mass., and H. L. Jaffe, Chicago.—p. 479.
Tomographic Study of Cancer of Larynx. F. Leborgne, Montevideo, Uruguay.—p. 493.
*Value of Nitrites in Cardiospasm (Achalasia of Esophagus): Preliminary Report. M. Ritvo and E. J. McDonald, Boston.—p. 500.
Chareot's Arthropathy of Both Ankles: Case Report. S. A. Leader, North Chicago, Ill.—p. 509.
Traumatic Pneumocephalus: Report of Two Cases. R. P. Barden, Pittsburgh.—p. 514.
Gastrointestinal Response of Average, Healthy Children to Test Meals of Barium in Milk, Cream, Meat and Carbohydrate Mediums. L. Reynolds, Icie G. Maey, Helen Hunscher and Mary Bates Olson, Detroit.—p. 517.
Effect of Injection of Distilled Water on Growth of Irradiated Mouse Sarcoma 180. K. Sugiyama, New York.—p. 533.
Effect of Irradiations on Normal and Metastatic Lymph Nodes. F. J. Taussig, St. Louis.—p. 539.
Radium Treatment of Carcinoma of Cervical Stump. R. E. Fricke and H. H. Bowling, Rochester, Minn.—p. 544.
Irradiation of Carcinoma of Cervix Uteri in Pregnancy. A. Strauss, Cleveland.—p. 552.
*Further Report on Radium Treatment of Carcinoma of Cervix Uteri: 135 Additional Cases with Five Year Follow-Up. H. C. Pitts and G. W. Waterman, Providence, R. I.—p. 567.
Treatment of Polycythemia Vera by Roentgen Irradiation of Entire Body. J. W. Pierson, Baltimore, and C. D. Smith, Richmond, Va.—p. 577.
Osteomyelitis of Occipital Bone Complicating Roentgen Treatment of Nasopharyngeal Lymphosarcoma. H. Potosky and J. R. Freid, New York.—p. 584.
Erythema Complicating Neoplastic Disease: Its Identical Occurrence in Four Cases of Carcinoma. L. Loeve and M. R. Camiel, Brooklyn.—p. 587.

Bronchiogenic Carcinoma.—Craver emphasizes the value of aspiration biopsy in the diagnosis of primary cancer of the lung and the value of roentgen radiation based on an analysis of 175 cases seen at the Memorial Hospital from 1918 to 1939 in which there was microscopic proof of the diagnosis. The diagnosis was proved at necropsy in thirty-four instances, from tissue removed at thoracotomy in eight, from expectorated macroscopic pieces of tissue in two, from tissue removed by bronchoscopy in fifty-nine and from aspiration biopsy in sixty. When a diagnosis of carcinoma is made after a carefully performed and interpreted aspiration biopsy and a clinical survey yields no sign of primary carcinoma elsewhere one is justified in assuming that the case is one of primary lung carcinoma. Bronchoscopy and particularly aspiration biopsy as proof of diagnosis

are brief, less hazardous and cause much less delay in subsequent procedures than thoracotomy. Removal of a biopsy specimen bronchoscopically is preferred to aspiration biopsy in all cases in which a bronchoscopic examination is feasible. Such tissue is more likely to show cellular arrangement and to permit a diagnosis of type, grade and radiosensitivity of the tumor more readily than the aspiration biopsy. However, the careful sectioning of the small clot or of gross tissue fragments obtained by aspiration biopsy may yield excellent sections. It was not possible to fit all cases into the three commonly accepted categories: epidermoid carcinoma, adenocarcinoma and anaplastic carcinoma. Two other groups were necessary: (1) bronchiogenic carcinoma, in which the growth is undoubtedly of bronchial origin but impossible of being classified as epidermoid carcinoma or adenocarcinoma, and (2) "carcinoma"—often the best diagnosis that can be made from the bits of tissue obtained by bronchoscopy or aspiration biopsy. The squamous and epidermoid group accounts for nearly half of the cases, bronchiogenic, adenocarcinoma and anaplastic growths each for about one tenth and the unclassified "carcinoma" for about one fifth of the cases. Follow-up of the 175 patients shows twenty living, 140 dead and fifteen untraced. Seventeen of the patients were untreated, two were operated on elsewhere, fourteen were treated with radon or radium packs and 142 received roentgen therapy. The duration of life after admission of the untreated patients averaged 2.4 months. The results of radium treatment were generally not favorable and the results of roentgen therapy show that, as the dose is increased in the initial cycle, the duration of life increases. Patients receiving from 2,000 to 3,000 roentgens in the tumor survived an average of 8.2 months, as compared with an average survival of only 4.3 months of those receiving less than 1,000 roentgens. There is a marked trend toward improved palliation as the tumor dose increases. The various microscopic types of carcinoma revealed no significant difference in the survival figures, but palliation seemed to favor the epidermoid group. One patient operated on ten months ago has gained 60 pounds (27.3 Kg.) and seems free of disease. For the remaining seventeen living patients treated by roentgen rays, the five year survival rates are discouragingly low. The five year survival rate is 3.8 per cent, the four, three and two year rates are respectively 4.4, 4.8 and 6.9 per cent. Roentgen treatment appears to be largely a matter of palliative effect and possible prolongation of life. One of the roentgen treated patients lived for 13.2 years.

Nitrites for Cardiospasm.—Ritvo and McDonald were able to relieve the esophageal obstruction of cardiospasm by administration of amyl nitrite or of glyceryl trinitrate. The effects of amyl nitrite were prompt in nearly every case. Glyceryl trinitrate was more variable and less effective yet proved more satisfactory for routine use because of the absence of side reactions accompanying the administration of amyl nitrite. Of the fourteen cases in which it was used partial or complete abolition of the stenosis resulted in eleven. Doses of $\frac{1}{100}$ grain (0.0006 Gm.), increased or repeated, were used when necessary without serious ill effects. The nitrites proved of no permanent curative value after repeated administration; however, the drugs have a definite though limited application in the treatment of cardiospasm. Patients with severe, chronic achalasia of the esophagus may lose much weight and become severely dehydrated and apprehensive. Vomiting and regurgitation with choking and severe coughing may cause pulmonary complications. In acute attacks the patient may actually struggle for breath and become cyanotic in attempting to dislodge a bolus of food by violent straining. Temporary relaxation of the stenosis may prove a life-saving procedure in cases of this type. The relief of the obstruction with the drugs, especially with glyceryl trinitrate, gives the patient relief from his distressing symptoms, it permits accurate roentgen visualization of the esophagus and the remainder of the gastrointestinal tract, the passage of dilators is facilitated and the danger of traumatism or perforation during instrumentation is lessened.

Radium for Carcinoma of Cervix Uteri.—Pitts and Waterman report the five year results on 135 patients with carcinoma of the cervix uteri treated with long platinum filtered radium needles of low intensity. The patients made up a consecutive series and all were treated in 1931, 1932 and

1933. A comparison of results obtained at the different clinical stages shows very little difference from the results obtained on the previously reported 173 patients treated between 1926 and 1930 by the interstitial method, in spite of the fact that more roentgen therapy was used on the last 135 patients. The five year survival rate in stage 3 cases for the first series was eighteen out of sixty-two, or 29 per cent; that for the 1931-1933 series was sixteen out of forty-eight cases, or 33.3 per cent. The five year survival rates for stage 2 cases were respectively 53.8 and 55 per cent and those for stage 1 cases 90 and 60 per cent for the 1926-1930 and the 1931-1933 series. The authors believe that the ability to deliver approximately 6,000 milligram hours of gamma radiation into the parametrial and paracervical tissues, in addition to the usual 3,000 milligram hours in the cervical canal, without tissue breakdown or other serious complication is the determining factor in producing good results in stage 3 cases.

American Journal of Surgery, New York

48:1-326 (April) 1940. Partial Index

- Preconceptional Care. F. L. Adair, Chicago.—p. 7.
Relation of Venereal Disease to Obstetrics. H. C. Hesselstine, Chicago.—p. 14.
Relation of Tuberculosis to Obstetrics. H. B. Matthews, Brooklyn.—p. 23.
Cardiac Disease in Obstetrics. E. J. Stieglitz, Garrett Park, Md.—p. 36.
Hemorrhages of Late Pregnancy and Labor: Placenta Praevia and Ablatio Placentae. R. W. Holmes, University, Va.—p. 61.
Prevention and Treatment of Eclampsia. W. J. Dieckmann, Chicago.—p. 101.
Factors Influencing Safety of Pain Relief in Labor. R. M. Waters and J. W. Harris, Madison, Wis.—p. 129.
Respiratory Complications in Care of the Newborn. F. F. Snyder, Chicago.—p. 169.
Gynecic Physiology and the Gynecologist. S. R. M. Reynolds, Brooklyn.—p. 175.
Endocrinopathic Amenorrhea: Causes and Treatment. E. L. Sevringhaus and R. E. Campbell, Madison, Wis.—p. 197.
Diagnosis and Treatment of Functional Uterine Bleeding. E. Novak, Baltimore.—p. 205.
Treatment of Primary Amenorrhea. B. M. Ansapach and J. Hoffman, Philadelphia.—p. 209.
*Treatment of Trichomonas Vaginalis. K. J. Karnaky, Houston, Texas.—p. 216.
Present Status of Radium Treatment of Carcinoma of Uterine Cervix. F. W. Lynch, San Francisco.—p. 249.
Lymphogranuloma Venereum in the Female. L. A. Gray and M. L. Barnes, Louisville, Ky.—p. 277.
Causes of Postmenopausal Bleeding. R. W. Te Linde, Baltimore.—p. 289.
Office Treatment of Pathologic Cervix. Sophia J. Kleegman, New York.—p. 294.

Treatment of Trichomonas Vaginalis.—Karnaky recommends the following treatment after a microscopic diagnosis of trichomonas has been made, or when a patient complains of a foul malodorous discharge that causes itching or burning of the external genitalia and in all vaginal infections: The vulva, vagina and perineum are gently washed with vinegar water (5 tablespoons in 2 liters of water) and dried. From 1 to 2 drachms (4 to 7.8 Gm.) of a hydroxyquinoline derivative (floraquin powder) is blown into the vagina or from 4 to 8 tablets of the preparation are inserted, encircling the cervix, with a small plug of cotton inserted at the introitus. The patient is instructed to insert 1 tablet every morning and evening for twelve days. Instructions are given that a douche should not be taken during this period. After twelve days vinegar water douches (5 tablespoons of vinegar to 2 liters of water) are to be taken twice daily between and during the next three menstrual periods and up to the fourth menstrual period. At the end of the fourth menstrual period a fresh vaginal smear is made for trichomonas vaginalis and if found negative the patient is pronounced cured. If the smear is positive the treatment is resumed. Following each menstrual period for from two to five days 1 floraquin tablet is inserted morning and evening with vinegar douches as needed. Two tablets are inserted at the slightest itching or discharge and 1 tablet morning and evening for the next six days. The patient returns twice a week for two weeks for observation. For trichomonas vaginalis, pruritus vulvae or vaginitis with a great deal of tenderness from 1 to 2 drachms of the powder is blown into the vagina every day until the soreness is gone. An acid jelly can be inserted twice a day as a home treatment. After the acute stage has subsided 1 tablet is inserted

twice a day as home treatment. In 400 cases of trichomonas vaginalis in private practice and in more than 4,000 charity cases at the Jefferson Davis Hospital, 94 per cent of the patients were cured by this method.

Archives of Internal Medicine, Chicago

65:873-1084 (May) 1940

- Pancreatic Lithiasis Associated with Pancreatic Insufficiency and Diabetes Mellitus: Report of Two Cases. S. S. Rockwern, Cincinnati, and D. Snively, Rock Island, Ill.—p. 873.
Level of Iodine in Blood. H. J. Perkin and F. H. Lahey, Boston.—p. 882.
Use of Alpha Lobeline for Measurement of Velocity of Blood Flow. K. Berliner, New York.—p. 896.
Reticulo-Endothelial Cytomycosis (Histoplasmosis of Darling). A. A. Humphrey, Battle Creek, Mich.—p. 902.
*Acute Miliary Infarction of Heart. J. R. Lisa and Elsie McPeak, New York.—p. 919.
*Sulfanilamide in Treatment of Infections of Urinary Tract Due to Bacillus Coli. L. A. Rantz and C. S. Keefer, Boston.—p. 933.
Bacterial Endocarditis Superimposed on Syphilitic Aortic Valvulitis. A. L. Braunstein, Baltimore, and S. R. Townsend, Montreal.—p. 937.
Further Experience with Roentgen Diagnosis of Idiopathic Steatorrhea: Report of Cases, Including Postmortem Observations in One Case. J. L. Kantor, New York.—p. 988.
*Generalized Sarcoidosis of Boeck: Clinical Review of Eleven Cases, with Studies of Blood and Etiologic Factors. G. T. Harrell, Durham, N. C.—p. 1003.
Criteria for Classification and Diagnosis of Peripheral Vascular Diseases. G. Saland, C. Klein, H. Zurrow, A. Gootnick and A. Katz, New York.—p. 1035.
Diseases of Heart: Review of Significant Contributions Made During 1939. A. Graybiel, with editorial assistance of P. D. White, Boston.—p. 1053.

Acute Miliary Infarction of Heart.—Lisa and McPeak direct attention to an acute lesion of the myocardium called miliary infarction, which was found in ninety-nine cases and was usually associated with the clinical syndrome of sudden left ventricular failure. The material reviewed consisted of 2,857 cases in which necropsy was performed; it was divided into two main groups: (1) cases in which coronary arteriosclerosis was present and (2) cases in which this condition was not present. The first group was subdivided into a cardiac sclerotic group and a noncardiac sclerotic group on the basis of clinical symptomatology. The acute miliary infarction was most frequent in the cardiac sclerotic group, much less so in the noncardiac sclerotic group and least frequent in the nonsclerotic group. In the cardiac sclerotic group, its incidence was equal to that of acute coronary thrombosis. The greatly hypertrophied heart with marked sclerosis of the coronary arteries seemed most susceptible to the occurrence of the lesion. In seventeen of the ninety-nine cases, thrombi or emboli of the myocardial branches of the coronary arteries were found. The thrombosis was bacterial in one instance and malignant in another. In one case thrombosis of a main coronary artery was caused by a bacterial embolus arising from acute lobar pneumonia. An infectious nature of the myocardial lesion itself was never demonstrated. Infections in other organs, most frequently the lungs, were present in the majority of cases. The authors think that the lesion in the majority of cases is toxic and in a small percentage is due to embolism or thrombosis of the muscular branches of the coronary arteries, usually, even in this group, associated with infection.

Sulfanilamide in Urinary Infections Due to Bacillus Coli.—Rantz and Keefer present a study of treatment with sulfanilamide in seventeen cases of infection of the urinary tract due to Bacillus coli. Clinical improvement and sterilization of the urine were accomplished in most instances; the best results were obtained in cases in which there was no previous history of urinary infection and in those in which the infection was associated with pregnancy. If evidence of chronic infection of the urinary passages was present, the urine was more difficult to sterilize, and relapse frequently occurred. The urine usually could be sterilized by the oral administration of from 2 to 5 Gm. of sulfanilamide in twenty-four hours; this dose resulted in concentrations of from 23 to 139 mg. of the drug per hundred cubic centimeters of urine. No definite correlation was demonstrable between the dose of sulfanilamide, its concentration in the urine and the permanence of cure. The usual toxic symptoms associated with the administration of sulfanilamide were observed. Anemia appeared when the drug was exhibited in the presence of fever but usually did not recur when it was admin-

istered in the absence of fever. Seven strains of *Bacillus coli* isolated from the urines were studied in vitro. Sulfanilamide had bacteriostatic and, in certain instances, bactericidal effects; there were great differences in sensitivity to the drug between the various strains. Optimal bacteriostasis was obtained with concentrations of more than 80 mg. of sulfanilamide per hundred cubic centimeters of urine. To increase its concentration above 160 mg. did not significantly increase the drug's effectiveness. The p_H of the urine did not affect the activity of the drug in vitro. No correlation was demonstrated between the activity of sulfanilamide in vitro and that in vivo. Mandelic acid in vitro was markedly bacteriostatic for all strains, but in vivo it was not as effective as sulfanilamide.

Generalized Sarcoidosis of Boeck.—Harrell observed eleven patients with generalized sarcoidosis over a period of four years. Two have been clinically well for two years. Negroes predominated in this group. Changes were found in the content of calcium, protein and phosphatase of the blood. The phosphorus and nonprotein nitrogen were not altered. The cholesterol content was usually low or normal in cases in which the condition was active. Bilirubin tolerance tests showed retention. Calcium tolerance tests gave varied results. Substances resembling Bence Jones protein were occasionally present in the urine. Etiologic studies, with emphasis on fungi and acid-fast bacilli, using animal inoculation, cultures and serologic and cutaneous tests, gave negative results. The cutaneous test suggested by Williams and Nickerson did not give positive results. It is possible that some unrecovered member of the general group of bacteria related to the actinomyces, the leprosy bacillus or the tubercle bacillus is the etiologic agent, but as yet the etiologic question remains unsolved. It is suggested that the reaction may be an exaggerated nonspecific response to a lipid fraction of various organisms. Hematologic studies confirmed low or normal white blood cell counts, neutropenia (without a shift to the left in the Schilling hemogram), eosinophilia, monocytosis and increased sedimentation rate. Occasional nonspecific changes were observed in the electrocardiogram. The pathologic picture varied from a complete absence of eosinophils, the presence of moderate numbers of giant cells in acute lesions and the occasional presence of necrosis and amyloid. The treatment was empiric. The patients were advised to take a high calory, high vitamin diet, with cod liver oil and tomato or orange juice, to rest and to remain in the sunshine as much as possible. Ultraviolet irradiation produced no permanent improvement. Hyperpyrexia and sodium gold thiosulfate produced no noticeable benefit. Intravenous injection of neosarsphenamine was credited by a patient with causing improvement. Other patients had received this drug before they were seen or have since received it in treatment of syphilis, with no benefit. Desensitization to Williams and Nickerson's antigen might be tried on patients who react positively on cutaneous test to it. The maintenance of the blood of the patients near saturation with vitamin C caused no immediate improvement.

Archives of Neurology and Psychiatry, Chicago

43:859-1056 (May) 1940

- Personality Changes Accompanying Cerebral Lesions: I. Rorschach Studies of Patients with Cerebral Tumors. M. R. Harrower-Erickson, Montreal.—p. 859.
- Vascular Bed of Retina in Mental Disease. J. M. Cotton, N. D. C. Lewis and A. W. Egenhofer, New York.—p. 891.
- Primary Intracranial Sarcomas. Y. K. Hsu, Chicago.—p. 901.
- Effects of Intravenous Injection of Insulin in Treatment of Mental Disease: Preliminary Report of Clinical Observations. P. Polatin, H. Spontitz and B. Wiesel, New York.—p. 925.
- Serum Protein, Nonprotein Nitrogen and Lipids in Schizophrenic and Manic-Depressive Psychoses. E. F. Gildes, Evelyn B. Man and R. W. Biach, New Haven, Conn.—p. 932.
- Histologic Changes Following Metrazol Convulsions, with Note on Fuchsinophilic Reaction as Index of Early Neurocytologic Change. H. Cleckley, L. Bowles and F. A. Mettler, Augusta, Ga.—p. 948.
- Temporary Arrest of Circulation to Central Nervous System: II. Pathologic Effects. L. M. Weinberger, Mary H. Gibbon and J. H. Gibbon Jr., Philadelphia.—p. 961.
- Certain Aspects of Defects of Recent Memory Occurring in Psychoses of Senium. D. E. Cameron, Albany, N. Y.—p. 987.
- Status Epilepticus as Complication of Metrazol Convulsive Therapy. N. G. Becker and S. I. Stein, Chicago.—p. 993.
- External Geniculate Bodies: Degeneration Studies Following Occipital Lobectomy. W. J. German and B. S. Brody, New Haven, Conn.—p. 997.
- Cessation of Epileptic Seizures and Electro-Encephalogram. R. Osgood, Boston, and L. J. Robinson, Palmer, Mass.—p. 1007.

Archives of Physical Therapy, Chicago

21:193-256 (April) 1940

- Observations on Short Wave Heat. A. Baehem, Chicago.—p. 197.
- *Treatment of Gonorrhea by Artificial Fever Alone and in Combination with Sulfanilamide. E. Belt and A. W. Folkenberg, Los Angeles.—p. 203.
- Universal Instrument for Corrective Exercises. E. H. Bettmann, White Plains, N. Y.—p. 211.
- Laboratory Method for Production of Fever. R. L. Bennett and E. C. Elkins, Rochester, Minn.—p. 216.
- Water Excretion During General Hyperthermia by Physical Means. A. Bessemans, H. de Waele and A. Van Meirhaeghe, Ghent, Belgium.—p. 219.
- Dangers of Ultraviolet Radiations. A. C. Cipollaro, New York.—p. 223.
- Synergistic Effect of Drugs and Light on Streptococci. L. Pincussen and A. J. Nedzel, Chicago.—p. 231.
- Removal of Skin Growths and Blemishes by Electric Needle. C. B. Lamp, Monongahela, Pa.—p. 235.

Artificial Fever and Sulfanilamide in Gonorrhea.—Belt and Folkenberg treated 134 gonorrhea patients with artificial fever, sixty-eight with fever and sulfanilamide and five with temperatures equal to the thermal death time of the gonococci. Twenty-nine of the 134 patients did not complete the single ten hour session. Five were given fever longer than ten hours. One hundred patients received a single hyperpyrexia treatment of ten hours at a rectal temperature of 106.7 F. Eighty-seven of these were found on a follow-up to be consistently free of gonococci. The 134 cases receiving only fever therapy represented every complication of gonococcal infection: prostatitis, cowperitis, epididymitis, seminal vesiculitis, periurethral abscess with fistulas, arthritis, salpingitis, Bartholinitis, proctitis, peritonitis, ophthalmia, septicemia and endocarditis. All complications except endocarditis responded well to treatment. Sulfanilamide and its related compounds, combined with mild local treatment, were effective in 80 per cent. The authors resorted to fever therapy in sulfanilamide-resistant cases. Sixty-eight patients were given 20 grains (1.3 Gm.) of sulfanilamide four times daily for two days preceding fever therapy. On the morning of the fever treatment the patient takes 20 grains of sulfanilamide one hour before reporting. A fever session of five hours is given every other day until three treatments have been given. Sulfanilamide, 20 grains, is administered four times daily on alternate days. This combination therapy cures 86 per cent of the 20 per cent not cured by sulfanilamide alone. A combination of the two figures demonstrates success in 97 per cent of the cases. For the few cases (five in number) not cured by the combined therapy; fever equal to the in vitro thermal death time of the patient's own strain of gonococcus is suggested. This method will result in an incidence of cure approaching 100 per cent.

Arkansas Medical Society Journal, Fort Smith

36:267-288 (May) 1940

- The Gann Resuscitator: Preliminary Report. D. Gann Jr., Little Rock.—p. 267.
- Simple Office or Bedside Test to Determine the Hydrogen Ion, p_H , or Degree of Acidity or Alkalinity. J. H. McCurry, Cash.—p. 272.
- Femoro-Iliac Thrombophlebitis of Lower Extremity: Treated by Blocking Lumbar Sympathetics with Novocain. R. E. Crigler, Fort Smith.—p. 274.

Bulletin New York Academy of Medicine, New York

16:195-262 (April) 1940

- Chemotherapy with Sulfonamide Derivatives: General Principles. F. G. Blake, New Haven, Conn.—p. 197.
- Chemotherapy of Pneumonia. N. Plummer, New York.—p. 208.
- Consideration of Some Toxic Effects of Sulfonamide Compounds, Particularly Sulfapyridine. W. S. Tillett, New York.—p. 217.
- Hyperpituitarism and Hypopituitarism. L. M. Davidoff, Brooklyn.—p. 227.
- Hypertension: The Problem, the Study, the Future. S. W. Mulholland, Philadelphia.—p. 244.

16:263-344 (May) 1940

- Medical Management of Hyperthyroidism. H. T. Hyman, New York.—p. 265.
- Hyperparathyroidism. H. L. Jaffe, New York.—p. 291.
- General Cryotherapy. J. C. A. Gerster, C. E. Kossmann, C. Reich, A. Bernhard, J. Geiger, T. K. Davis, Madge C. L. McGuinness, H. R. Kenyon, J. F. Dixon, F. Huber, R. M. Paltauf, P. K. Sauer and W. L. Whittemore, New York.—p. 312.

California and Western Medicine, San Francisco

52:203-248 (May) 1940

- Syphilis: Its Treatment in the Tuberculous Patient. W. Beckh, San Francisco.—p. 209.
- Arthritis: Its Treatment with Undenatured Bacterial Antigens. Dorothy Walsh Schallig, Sacramento.—p. 212.
- Eighth Nerve and Conduction Deafness. G. Selfridge, San Francisco.—p. 214.
- *Chronic Salpingitis: Hysterosalpingectomy in Its Operative Treatment. J. C. McDermott, Los Angeles.—p. 217.
- Laboratory Methods for Differentiation of Various Neurotropic Viruses. Beatrice F. Howitt, San Francisco.—p. 219.
- Tinea Capitis on the Pacific Coast. E. A. Levin, San Francisco.—p. 221.
- Anent Pronunciation of Medical Words. M. Thehaut, Oakland.—p. 222.
- Fermentation: Retrospect. C. L. A. Schmidt, San Francisco.—p. 224.
- Diverticulitis of Colon. C. J. Berne, Los Angeles, and A. C. Pattison, Pasadena.—p. 225.

Hysterosalpingectomy for Chronic Salpingitis.—McDermott analyzes results in sixty patients from the Los Angeles County Hospital, all of whom had had bilateral salpingectomies for chronic salpingitis and later had to have hysterectomies. He believes that for every one of these there must be several who suffer from symptoms due to the "left-over uterus" but who are so discouraged by the poor results of their one operation that they refuse a second; or there must be those whose symptoms are not quite sufficient to justify another major procedure. The argument of the proponents of conservatism favoring the preservation of the child-bearing function is pertinent only when plastic operations on the tube or unilateral salpingectomy are performed. The author believes that the chances of success are slight. The second argument, that of the physiologic value of the uterus, is met by the answers that the psychologic importance of menstruation is overestimated and that there is no proof that the uterus has an endocrine function, its only known purpose being that of child bearing. The argument of the technical difficulties of hysterectomy is refuted by the facts. To conserve an organ may or may not be conservative as far as the welfare of the patient is concerned. Incomplete surgery is often given standing by being labeled conservative.

Canadian Public Health Journal, Toronto

31:163-208 (April) 1940

- Mental Hygiene in Canada. J. D. M. Griffin, Toronto.—p. 163.
- Development of a Health Program in the Secondary School. D. V. Currey and A. G. Nicolle, St. Catharines, Ont.—p. 175.
- Prevention and Control of Scarlet Fever. E. S. Bolton, Brandon, Man.—p. 184.
- The Convulsive Child in the Community. W. W. Barradclough, Toronto.—p. 188.
- Tuberculosis Survey in Bridgetown, Nova Scotia. J. S. Robertson, Yarmouth, N. S.—p. 194.

Connecticut State Medical Journal, Hartford

4:185-242 (April) 1940

- Future Progress. A. B. Landry, Hartford.—p. 185.
- Intestinal Intubation. C. H. Duston, Waterbury.—p. 187.
- Clinical Problems in the Newborn Infant. H. H. Gordon, New York.—p. 191.
- Focal Infection. J. R. Paul, New Haven.—p. 198.
- Prepaid Medical Service. C. Barker, New Haven.—p. 200.
- Schonlein-Henoch's Purpura Simulating Acute Surgical Abdomen. J. B. Herrman, New Haven.—p. 202.

Delaware State Medical Journal, Wilmington

12:57-72 (April) 1940

- Massive Resection of Bone Sarcoma with Immediate Bone Graft Replacement. F. H. Albee, New York.—p. 57.

Georgia Medical Association Journal, Atlanta

29:205-250 (April) 1940

- Simple Proctologic Procedures. C. E. Hall Jr., Atlanta.—p. 205.
- Anesthesia in Rectal Surgery. A. M. Phillips, Macon.—p. 209.
- Some Comments on Treatment of Congenital Clubfoot. J. H. Kite, Atlanta.—p. 212.
- Some Problems of Medical Care as Seen by a County Health Officer. M. E. Groover Jr., Quitman.—p. 216.
- Relief of Pain in Trigeminal Neuralgia. E. Walker, Atlanta.—p. 222.
- Concerning Biliary Tract Disease, Special Reference to Acute Cholecystitis. C. W. Roberts, Atlanta.—p. 225.
- Augusta: From Trading Post to Medical Center. J. Krafka Jr., Augusta.—p. 232.
- Some Medical Aspects of Ophthalmoscopy. C. K. McLaughlin, Macon.—p. 236.

Illinois Medical Journal, Chicago

77:289-384 (April) 1940. Partial Index

- Spontaneous Hemorrhage and Meteorologic Environment. W. F. Petersen, Chicago.—p. 325.
- Electrocardiography and Clinical Practice. S. P. Waud, Chicago.—p. 332.
- Care of Skin in Newborn Infant. R. I. Klein and P. L. Ains, Chicago.—p. 337.
- Indication for Office Treatment in Rectal Disease. T. F. Reuther, Chicago.—p. 341.
- Sulfanilamide in Diphtheria: Report of Cases. S. Fisher, Normal.—p. 342.
- The Nervous System and the Allergic. J. Peters, Oak Park.—p. 343.
- Surgery in the Mentally Ill. L. C. Arp and A. H. Arp, Moline.—p. 349.
- Electrocardiography in General Practice. H. F. DeFeo, Chicago.—p. 353.
- Chlorine Death Point of Cowpox Virus. H. Macdonald, Evanston.—p. 356.
- Etiology of Senile Cataract. J. Shanks, Chicago.—p. 357.
- The Mentally Handicapped Child. A. S. Hersfield, Chicago.—p. 369.
- Periodic Paralysis. A. D. M. Kraus, Chicago.—p. 371.
- Possible Cause of Malformations and Spontaneous Abortions. E. C. Piette, Oak Park.—p. 375.
- Spinal Anesthesia: Modified Technic with Rationale of Its Employment in 5,000 Cases. P. Pernworth, Venice.—p. 376.

Iowa State Medical Society Journal, Des Moines

30:95-136 (March) 1940

- Rheumatic Heart Disease: Review of Ninety-Five Cases. H. W. Rathe, Waverly.—p. 95.
- Gastro-Enterostomy in Treatment of Peptic Ulcer. M. McKirdie and J. W. Dulin, Iowa City.—p. 100.
- Record Librarian, an Aid to Doctors. Leona J. Bohach, Des Moines.—p. 103.
- The Nervous Heart. B. F. Wolverton, Cedar Rapids.—p. 106.
- Simple Foot Plate for Use in Skin Traction on Lower Extremities. L. M. Overton, Des Moines.—p. 110.

Johns Hopkins Hospital Bulletin, Baltimore

66:263-334 (May) 1940

- *Lung Abscess: Analysis of Eighty-Eight Cases. A. M. Fisher and G. G. Finney, Baltimore.—p. 263.
- Effect of Testosterone Propionate on Development of Tuberculosis in Immature Male Guinea Pig. W. H. Carnes and G. R. Biskind, Baltimore.—p. 297.
- *Skin, Conjunctival and Scleral Reactions in Course of Therapy with Sulfathiazole. J. W. Haviland and P. H. Long, Baltimore.—p. 313.
- Treatment of Laryngeal Papilloma in Children with Estrogenic Hormone: Preliminary Report. E. N. Broyles, Baltimore.—p. 319.

Lung Abscess.—Fisher and Finney report the results of various types of treatment in eighty-eight cases of lung abscess. All but five of the patients, who were between 3 and 6 years of age, were adults up to more than 61 years of age. Fifty patients either improved or recovered completely, and thirty-eight either died or failed to improve. The duration of the abscess is of great importance. Many patients get well spontaneously if the duration prior to admission is less than two months. The percentage of unsatisfactory results rises rapidly and progressively thereafter. The majority of lung abscesses are due to atelectasis and aspiration of infected material from the upper part of the respiratory tract. A much smaller proportion is due to infected pulmonary or sterile emboli followed by aspiration of infected material. Contributing factors are oral sepsis, alcoholism and malnutrition. The flora in the material from abscesses varies from case to case. Anaerobes and facultative anaerobes are frequent. The alpha-hemolytic (viridans) streptococcus is prominent in the sputum; it is at times aerobic and at other times facultatively anaerobic. Anaerobic streptococci are most often found in cultures of material obtained from the abscesses or from complicating empyemas. Anaerobic gram-negative bacilli are also frequently found in the abscess or empyema fluid. In most lesions a symbiosis of several varieties is encountered. Eradication of infections in the nose, throat and mouth, especially before operation, should lower the incidence of lung abscess. The type and depth of anesthesia and the position of the patient during operation are important. Other prophylactic measures are aspiration of secretions from the trachea during and after operation and postoperative inhalations of carbon dioxide and oxygen by patients not acrating their lung bases well. Postural drainage should be as nearly continuous as practical. When the sputum contains many spirochetes, arsenicals intravenously may yield dramatic results. Repeated therapeutic bronchoscopy is usually not indicated. Pneumothorax is useful only when the lesion is close to the hilus. Surgical treatment should

provide adequate drainage without contaminating the pleural cavity. This can usually be accomplished by a two-stage operation, the cauterization being used for incision into the abscess. The chief barriers to successful treatment in the chronic abscesses are thick, rigid, fibrous walls which prevent collapse of the cavities, eroded blood vessels with recurrent hemorrhages, intrapulmonary spread or metastatic abscess formation and the unfavorable effect of the chronic infection on the patient's general condition. Acute fulminating abscesses usually lead to death in from a few days to a few weeks, in spite of treatment. Putrid empyema or pyopneumothorax was present in nine cases. Some form of closed drainage is the best means of dealing with these complications. Chronic alcoholism makes the prognosis much worse. All six patients with such a history died. Operations in the presence of oral infection is hazardous. There were four such cases, all fatal.

Skin and Ocular Reactions in Sulfathiazole Therapy.—During the first three and one-half months of sulfathiazole therapy in their clinic Haviland and Long encountered ten cases of cutaneous eruptions in a total of seventy-eight patients. The reactions appeared after the compound had been administered for several days. All the eruptions cleared rapidly, coincident with the disappearance of the drug from the blood stream. They were almost always accompanied by one or another of the companion signs of a sulfonamide reaction. The rashes fall into three groups: maculopapular, urticarial and erythema nodosum. The last two groups may merge into one another. They are quite different from the eruptions which follow the use of other sulfanilamide derivatives. The urticarial reactions involve the skin of the extremities, although the trunk was not spared when the rash became extensive. The involved area was raised, red, well outlined and irregularly thickened. As the lesions faded, they left a reddened area at the site for a few days, but even this soon faded. The reactions likened to "erythema nodosum" were more advanced stages of the so-called urticarial lesions. They were described as typical of "erythema nodosum" when knowledge of the medication was lacking. When the nodules regressed they did not turn dusky and reddish blue. There was no local discoloration. One entirely new type of drug reaction has been observed in this group. The lesion is a conjunctival and scleral injection, restricted in the main to the exposed portions of the bulbar conjunctiva and sclera. The injection has been extreme in six cases, with considerable burning and a watery discharge from the affected eye. Four of the six cases occurred in conjunction with the drug eruption, while two were seen as isolated phenomena. In three cases, the eye nearest the light was disturbed either solely or primarily. In two cases in which exposure to light was great the eruption and conjunctivitis were much more severe, involving the exposed surfaces and even the palpebral conjunctiva. There was no recrudescence of the conjunctivitis on exposure to light after sulfathiazole had been discontinued. That this reaction did not invariably follow exposure to light is shown by the fact that several other patients were exposed to winter daylight during the course of sulfathiazole therapy without untoward results. In view of the apparent relationship of some of these reactions to exposure to light, the question of light sensitivity as an etiologic agent in sulfonamide reactions is again raised.

Journal of Immunology, Baltimore

38:251-332 (April) 1940

Agglutinins for Sheep Erythrocytes in Rabbit Antipneumococcus Serums. M. R. Chassin, New York.—p. 251.
Thymoxyethylthylamine as Antagonist of Histamine and of Anaphylactic Reactions. S. R. Rosenthal and Mary Louise Brown, Chicago.—p. 259.
Antibody Formation in Lesion Produced by Tubercle Bacilli Suspended in Paraffin Oil: Excision of Antigenic Depot. J. O. Westwater, New York.—p. 267.
Toxicity of Antiseptics: Experiments with Hemolytic Complement. H. Welch, C. M. Brewer and A. C. Hunter.—p. 273.
Some Properties of Hemolysin Produced by Group A β -Hemolytic Streptococci. C. V. Smythe and T. N. Harris, Philadelphia.—p. 283.
Studies on Occurrence of V Factor (Coenzymes I and II) in Normal and Pathologic Spinal Fluids. Celia Secher, New York.—p. 301.
Further Inoculation Experiments with Common Cold Virus. H. M. Powell, A. L. Sparks and G. H. A. Clowes, Indianapolis.—p. 309.
Antigenic Composition and Immunizing Properties of Trypanosomes. I. J. Kligler, L. Olitzki and Helen Kligler, Jerusalem, Palestine.—p. 317.

Journal of Nutrition, Philadelphia

19:311-414 (April) 1940

Iron Utilization in Dogs on Milk Diets. D. V. Frost, C. A. Elvehjem and E. B. Hart, Madison, Wis.—p. 311.
Anti-Gray Hair Vitamin, New Factor in Vitamin B Complex. G. Lunde and H. Kringstad, Stavanger, Norway.—p. 321.
Cystine and Methionine Deficiency in Mold Proteins. C. E. Skinner and A. E. Muller, Minneapolis.—p. 333.
Cure of Nutritional Muscular Dystrophy in Rabbit by Alpha-Tocopherol and Its Effect on Creatine Metabolism. C. G. Mackenzie and E. V. McCollum, Baltimore.—p. 345.
Amino Acids Required for Complete Replacement of Endogenous Losses in Adult Rat. E. W. Burroughs, Helen S. Burroughs and H. H. Mitchell, Urbana, Ill.—p. 363.
Interdependence Among Amino Acids in Their Utilization in Endogenous Metabolism. E. W. Burroughs, Helen S. Burroughs and H. H. Mitchell, Urbana, Ill.—p. 385.
Factor II Deficiency in Dogs. P. J. Fouts, Indianapolis; O. M. Helmer and S. Lepkovsky.—p. 393.
Retention of Calcium and Phosphorus by Preschool Children. H. B. Pierce, R. G. Daggs, A. B. Meservy and W. J. Simcox, with technical assistance of D. H. Howe and M. W. Foote, Burlington, Vt.—p. 401.

Journal of Pediatrics, St. Louis

16:549-678 (May) 1940

Certain Effects of Hemophilia on Growing Skeleton: Some Roentgenographic Observations on Overgrowth and Dysgenesis of Epiphyses Associated with Chronic Hemarthrosis. J. Caffey and E. R. Schlesinger, New York.—p. 549.
*New Treatment for Furunculosis (Sulfamethylthiazole). C. G. Grulee and J. T. Mason, Chicago.—p. 566.
Behavior Examination of Infants as Aid to Early Diagnosis of Central Nervous System Disease. Helen Thompson and P. A. Bearg, New Haven, Conn.—p. 570.
Neural Maturation as Exemplified in Achievement of Bladder Control. Myrtle B. McGraw, New York.—p. 580.
Equine Encephalomyelitis (Western Type) in Children: Report of Cases with Residual Atrophy of Brain. J. H. Davis, San Francisco.—p. 591.
Idiopathic Lipemia with Secondary Xanthomatosis, Hepatosplenomegaly and Lipemic Retinalis. M. Goodman, H. Shuman and S. Goodman, Boston.—p. 596.
*Tetany in Infancy and Childhood: Clinical Study of Forty-Five Cases Seen in North China, with Especial Reference to Etiology. F. T. Chu and C. Sung, Peiping, China.—p. 607.
Capillary Fragility and Ascorbic Acid Studies. H. G. Rapaport, S. H. Miller and A. Sicular, New York.—p. 624.
Value of Tuberculin Patch Test in Case Finding. H. Vollmer, New York.—p. 627.
Creeping Eruption (Ankylostoma Braziliense Infestation) with Spontaneous Remissions and Recurrences: Report of Two Cases. R. H. Rigdon, Memphis, Tenn.—p. 637.

Sulfamethylthiazole for Furunculosis.—Grulee and Mason used sulfamethylthiazole for the treatment of three children with furunculosis of the scalp. Improvement began within from twenty-four to forty-eight hours. The furuncles of one child were almost completely healed in six days; in the others new lesions developed when the drug was discontinued, but all cleared up after a total of thirteen and twenty-three days of treatment, respectively. The dosage used was from 0.5 to 1 Gm. every four hours. The infant who required twenty-three days of treatment had the most severe case of furunculosis ever seen by the authors. The child had been hospitalized when 2½ months old and treated variously for eight months, with no apparent improvement. On the tenth day after sulfamethylthiazole was started in this case the abscesses still showed positive cultures. Vomiting, toxic rash and neutropenia developed in two of the children, but all this cleared up without serious after-effects.

Tetany in Infancy and Childhood.—Chu and Sung report the results of vitamin D and calcium therapy in forty-five cases of tetany in children from birth to 12 years of age. The following features had to be present: hypocalcemia (serum calcium content of 8 mg. or less per hundred cubic centimeters), typical attacks of spontaneous carpopedal spasm and other manifestations of tetany, such as convulsions, muscular spasms, Trousseau's sign, Chvostek's sign or Erb's sign. This material differs from cases reported in the Western literature in that the onset of tetany in thirty of their children occurred in the first three months of life and also in that their tetany patients often show rickets, even if they are no older than 3 months. These differences are explained by the fact that the mothers who bear and feed these children suffer from abnormal vitamin D metabolism. Twenty-six of thirty-five children who

had x-ray examinations of the long bones showed rachitic signs of varying degrees, mostly moderate and mild. Clinically, twenty-one of these children were rachitic. Calcium therapy alone may elevate the serum calcium temporarily, but the active symptoms of tetany will recur until vitamin D is supplied in sufficient amount. Therefore antirachitic treatment should be instituted simultaneously or a few days after calcium therapy is begun. Concentrated preparations of vitamin D bring the serum calcium to a normal level within a short period. Fifty per cent of the patients were breast fed before tetany developed. In a community in which the mother's nutrition is usually not adequate, human milk should not be relied on to protect the sucklings from tetany. The case fatality of the series was 20 per cent. The chief causes of death were various infections in six, neoplasm of the liver in one, "idiopathic hypertrophy of the heart" in one and probably laryngospasm in another case. Except for the latter case,* none of the deaths were directly related to tetany. Uncomplicated cases of tetany, if correctly diagnosed and appropriately treated, have an excellent prognosis.

Journal of Thoracic Surgery, St. Louis 9:357-470 (April) 1940

- Selective Type of Thoracoplastic Operation. W. A. Hudson, Detroit.—p. 357.
*Study of Immediate and Late Results in 511 Patients Subjected to Thoracoplasty. E. J. O'Brien, J. C. Day, P. T. Chapman and W. M. Tuttle, Detroit.—p. 364.
Extrascapular Air as Adjunct to Thoracoplasty with Extrascapular Apicalysis. T. B. Aycock, O. C. Brantigan and H. Welch, Baltimore.—p. 382.
*Four Years' Experience with Extrapleural Pneumothorax and Oleothorax. O. S. Proctor, Seattle.—p. 392.
*Diagnosis and Surgical Therapy of Patent Ductus Arteriosus. J. C. Jones, F. S. Dolley and L. T. Bullock, Los Angeles.—p. 413.
Operation for Development of Collateral Circulation to Heart. P. Heinecker and W. A. Barton, St. Louis.—p. 431.
Acute Putrid Abscess of Lung: IV. Surgical Treatment and Results in Eighty-Six Consecutive Cases. H. Neuhof and A. S. W. Touroff, New York.—p. 439.
Thoracoplasty Without Section of Muscles. R. Finochietto, Buenos Aires, Argentina.—p. 450.

Results of Thoracoplasty.—O'Brien and his associates performed a total of 1,404 operations on 511 patients from August 1932 to Dec. 31, 1938. The disease was unilateral in 202 cases and bilateral in 309. Ninety-seven patients had contralateral pneumothorax at the time of thoracoplasty. The disease was predominantly productive in 368 cases. It was mixed in 104 and exudative in thirty-nine. Four hundred and ninety-six patients had cavernous lesions. Thoracoplasty was done in fourteen cases for closure of tuberculous empyema. With few exceptions the first stage consisted of complete removal subperiosteally of the upper three ribs through a posterior incision. Successive stages were performed at three week intervals, long sections of two or three ribs being removed at a stage until the desired amount of collapse was obtained. Only infrequently has it been necessary to subject the patient to more than four stages. The fifth and sixth stages represent secondary operations or revisions. Anterolateral stages were done in forty-nine, and secondary operations (revisions) were necessary in seventy-one. The immediate fatality rate (within eight weeks after operation) was 9.39 per cent; the late fatality rate (from two months to six and one-half years after operation) 9.78 per cent, the total 19.17 per cent. Cavity closure was effected in 87.02 per cent and sputum conversion in 81.65 per cent. In 187 cases the condition has apparently been cured, in eighty-two it has been arrested, in forty it has been apparently arrested, in twenty-six it is quiescent and in forty-nine it is unstable, and twenty-six cases are untraced. Of 296 patients at home, 224 are working or are able to work. The experience with thoracoplasty in the very young (youngest patient 8 years) has been disappointing. Although gratifying results have been obtained in the adolescent group so far as cavity closure and sputum conversion are concerned, the authors have been reluctant to subject these patients to thoracoplasty because of the possibility of marked deformity. Extrapleural pneumothorax may prove to be a valuable procedure in controlling, at least temporarily, the lesions in this group of patients. The fatality rate was only 3 per cent greater in the exudative than in the productive type of lesion.

Extrapleural Pneumothorax and Oleothorax.—Proctor considers extrapleural pneumothorax a valuable addition to thoracic surgery because it provides a chance for recovery in many otherwise hopeless cases. If permanent collapse is desired, the diseased area should have oleothorax, which attains the goal of a permanent filling. In the majority of his forty-four cases, extrapleural pneumothorax has been converted into oleothorax. When it is intended from the start to use oil as a permanent means of keeping a localized area of lung compressed an extrapleural pneumothorax is established first. Two or three months later, when the extrapleural space is of the size and location desired, it is filled with oil. The extrapleural space may be varied in size by the amount of pressure used in the refills. The best procedure is to make the original space larger than one contemplates leaving it and with the use of less pressure allow the lung to reexpand to the desired point. Olive oil or liquid petrolatum may be used with or without the addition of cajuput oil. The author preferred olive oil with 2 per cent cajuput oil. In many instances it may be preferable to use liquid petrolatum for four sessions, depending on the size of the space. Additional oil may be added every six to twenty-four months. Additional pleural pneumothorax with oleothorax presents advantages over thoracoplasty.

Patent Ductus Arteriosus.—Jones and his associates report clinical observations on seven patients with patent ductus arteriosus in whom they performed surgical ligation. Six patients were between 4 and 13 years of age and one patient was 31. All except the adult showed a high pulse pressure with low diastolic blood pressure. The diastolic pressure was often difficult to measure. One of the patients had a classic Corrigan pulse and pistol shot sound over the femoral artery. Another patient had these signs appear only after exercise. All patients had typical physical signs and laboratory evidence of a patent ductus arteriosus. The most important sign of the condition is a continuous murmur in the pulmonic area, varying in intensity during each cardiac cycle and usually accompanied by a thrill. Increase of the pulmonary second sound, prominence of the pulmonary conus on x-ray examination, absence of cyanosis, increase of pulse pressure with low diastolic pressure and absence of axis deviation in the electrocardiogram are usually present as confirmatory aspects. The authors describe the surgical technique and review the operative and postoperative courses. They conclude that these cases must be followed over a long period before the described procedure can be adequately evaluated. They have successfully ligated a patent ductus arteriosus in six additional cases, bringing the total to thirteen.

Journal of Urology, Baltimore 43:533-622 (April) 1940

- Carcinoma in Exstrophy of Bladder. P. E. McCown, Indianapolis.—p. 533.
Management of Intractable Cystitis Associated with Vesical Fistula and Osteomyelitis of Pelvic Girdle: Report of Three Cases Following Traumatic Rupture of Bladder and Fractured Pelvis. C. P. Mathé, San Francisco.—p. 543.
Lumbosacral Subarachnoid Tap. J. A. Taylor, New York.—p. 561.
Present Status of Transurethral Resectionists, Competent and Otherwise. F. E. B. Foley, St. Paul.—p. 565.
The Training of a Urologic Surgeon. C. C. Higgins, Cleveland.—p. 572.
Simplified Determination and Practical Interpretation in Cystometry: Critique of Attempts Made to Complicate This Procedure. M. Muschat, Philadelphia.—p. 582.
New Cutaneous Ureterostomy Device. M. E. Greenberger and I. Helfert, New York.—p. 588.
*Occurrence of Urologic Complications in Humans Following Sulfa-pyridine Therapy. W. Antopol, Newark, N. J.—p. 589.
Prevention of Recurrence of Urinary Stone. W. M. Kearns, Milwaukee.—p. 598.
New Method for Cleansing and Sterilizing Ureteral Catheters, with Special Reference to Tubercle Bacillus. J. H. Winer and F. W. La Cava, New York.—p. 611.
Clinical Value of Delayed Urogram. W. F. Braasch and A. K. Doss, Rochester, Minn.—p. 617.

Urologic Complications of Sulfapyridine.—Antopol states that sixteen of forty patients with pneumococcal pneumonia receiving sulfapyridine showed a transient microscopic hematuria. X-ray examination of two patients with considerable hematuria revealed a urolith. This is in accord with the experimental studies in which the concretions are radiotransparent. A secondary deposition of a calcium shell occurs after

the calculus has been present for a long time. The concretions are soft and friable and can be either redissolved or washed out. The entire urinary output was collected and examined daily. This revealed a hematuria varying from 2 to more than 100 erythrocytes per high power field, with most cases containing between 3 and 5 cells. In 100 collected cases of pneumococcal pneumonia before the advent of sulfapyridine therapy, erythrocytes were found in specimens of urine of only eleven patients; in six of these there was less than 1 erythrocyte per high power field and in the other five less than 3 cells. In the sulfapyridine group of patients whose urine was examined before or in the early period of therapy no erythrocytes were found. The hematuria was usually detectable in from one to three days after sulfapyridine therapy was initiated and disappeared shortly after it was discontinued. No residual symptoms were exhibited by any of the surviving patients. In one instance no concretions were demonstrable at necropsy in the urinary tract. However, there was a pronounced localized non-necrotizing hemorrhagic papillitis and pyelitis and severe tubular degeneration in the adjacent areas. The degenerative renal changes corresponded with those found in animal experiments. It is not unlikely that the lesions found at necropsy, as well as the cause of the hemorrhage in one case, may have been primarily renal degenerative or vascular and noncalculous in nature. Because of this possibility and because blood clots have been found to be the cause of obstruction in some of the experimental animals, the latter might well have been the cause of the colicky pain which radiated from the lumbar region anteriorly to the groin, complained of by one patient. Gross hematuria was present at this time. X-ray examination of the abdomen revealed no calculi. Fluids were forced and the hematuria cleared up in four days. There were no residual signs.

Kentucky Medical Journal, Bowling Green

38:139-186 (April) 1940

- Treatment of Varicose Veins in Lower Extremity. W. Barrow, Lexington.—p. 140.
Acute Laryngotracheobronchitis in Children. H. S. Andrews, Louisville.—p. 145.
Consideration of Lesions in Upper Urinary Tract Simulating Gastrointestinal Disorders. L. Atherton, Louisville.—p. 152.
Some Thoracic Complications of Pulmonary Tuberculosis. H. C. Sweany, Chicago.—p. 161.
The Public Health Possibilities of Rural Ambulatory Pneumothorax. O. A. Beatty, Glasgow.—p. 164.
Exhibits of the Southern Medical Meeting at Memphis, November 1939. M. Casper, Louisville.—p. 166.
Sternal Marrow Biopsy: Methods, Indications and Limitations. H. Gordon, Louisville.—p. 170.
Stream Pollution. H. R. Leavell, Louisville.—p. 174.

Medical Bull. of Veterans' Adm., Washington, D. C.

16:311-414 (April) 1940

- Value of Rytz Test. L. E. Nolan, G. W. Twomey and D. R. Werba.—p. 311.
Recurrent Inguinal Hernia: Analysis and Statistical Study, with Discussion of the Common Errors in Its Repair. R. L. Ramos and C. C. Burton.—p. 318.
Value of Shock Treatment of Chronic Schizophrenia. C. N. Baganz.—p. 326.
Cardiac Pain: Statistical Study. E. A. Martin.—p. 331.
Study of Autopsy Protocols in Eighty-Six Deaths from Gastric Lesions. S. S. Tanz.—p. 334.
Tularemia Pneumonia: Report of Four Cases. T. E. Dredge.—p. 337.
Carcinoma of Prostate Gland with Metastases. L. G. Glickman and L. E. Nolan.—p. 343.
Original Method for Repair of Fracture of Patella. J. W. Wheeler.—p. 349.
Ceviamic Acid in Treatment of Peptic Ulcer with Hemorrhage. W. S. Anderson.—p. 351.
Influence of Heterophile Antigen in Nervous and Mental Disease. E. W. Lavell.—p. 353.
Evaluating Fungicides in Prophylaxis and Treatment of Epidermophytosis of Feet. L. Birnbaum and Mary A. White-Swales.—p. 371.

Michigan State Medical Society Journal, Lansing

39:293-372 (May) 1940

- Psychiatry in the Service of Schools. H. C. Schumacher, Cleveland.—p. 307.
Treatment of Pneumonia with Sulfapyridine and Specific Serum. M. Finland, Boston.—p. 311.
Sickness Disability Among Wage Earners. M. Woody, New York.—p. 318.
Hyperthyroidism: Treatment. G. Crile Jr., Cleveland.—p. 321.

Military Surgeon, Washington, D. C.

86:425-528 (May) 1940. Partial Index

- Relationship of Red Cross to the Army; Welfare Service Rendered Hospitals and Troops in the Field. D. C. Smith.—p. 425.
First Aid Appliances for the Ambulance Surgeon. F. P. Dueno.—p. 435.
Transport by Air of the Sick and Wounded. E. Hippke.—p. 439.
Influence of Scurvy on Maritime History. L. H. Roddis.—p. 444.
Vinethene: Inhalation Anesthetic for Rapid Induction and Quick Recovery: Administered by Open Drop or in Gas Machine for Dental Oral Surgery. B. S. Rothwell.—p. 452.
Gunshot Wounds of Abdomen. J. W. Davis.—p. 456.
Importance of Proper Psychiatric Survey in Enrolment of Personnel of Military Forces. C. N. Baganz.—p. 471.
Electrocardiographic Studies of Army Air Corps Officers. H. P. Marvin and W. F. Hall.—p. 497.

Nebraska State Medical Journal, Lincoln

25:121-164 (April) 1940

- Treatment of Carcinoma of Breast. E. W. Rowe, Lincoln.—p. 121.
Cost of the Care of the Cancer Patient. J. F. Kelly, Omaha.—p. 128.
Cancer of Stomach. J. E. Uridil, Hastings.—p. 130.
*Cancer of Lip: Consideration of Its Prophylaxis, Diagnosis and Treatment. H. B. Hunt, Omaha.—p. 133.
Clinical Indications for Biopsy. J. M. Neely, Lincoln.—p. 138.
Note on Examination for Cancer. N. H. Rasmussen, Scottsbluff.—p. 142.

25:165-204 (May) 1940

- Plastic Repair Following Removal of Neoplasms About Head. F. A. Figi, Rochester, Minn.—p. 165.
Infant Mortality. R. H. Loder, Lincoln.—p. 172.
Care of the Premature Infant. E. W. Zeman, Omaha.—p. 174.
Premature Infant Mortality. R. H. Loder, Lincoln.—p. 177.
Low Back and Sciatic Pain Caused by Intervertebral Disk Herniation. J. J. Keegan and A. I. Finlayson, Omaha.—p. 179.
Tuberculosis Survey: Three-Year Résumé. E. A. Rogers, Lincoln.—p. 185.
*Cancer of Lip: Consideration of Its Prophylaxis, Diagnosis and Treatment. H. B. Hunt, Omaha.—p. 187.
Hemp Pollen Sensitivity in Omaha. E. S. Maloney and M. H. Brodkey, Omaha.—p. 190.

Cancer of Lip.—Hunt states that any progressive or persistent "sore," "fever blister," "crack" or "lump" on the lower lip which does not heal in three weeks must be considered cancer until disproved by biopsy or darkfield examination. Cancer of the lip is fifty times as prevalent in men as in women. Many extraneous factors hasten its development in a susceptible person. Sunburn should be avoided. Repeated blistering of the lip and skin by sunlight or ultraviolet rays is definitely injurious and probably accounts for the unusually high incidence of cancer of the face in the farming population. The overwhelming predilection of cancer for the lower lip, occurring in 98 per cent of the male cases, is in keeping with the relatively greater exposure of the lower lip to sunlight and other disturbing influences. Other probable precipitating causes may be repeated burns from short cigarets, short stemmed pipes, overly hot foods, snuff, mechanical irritation, overhanging, sharp, irregular upper incisor or cuspid teeth, and repeated chapping and cracking by wind, weather and sun. All chronic lesions showing continued overgrowth of tissues are eventually precancerous lesions and should be eliminated. Leukoplakia should be eradicated, particularly in case of ulceration or extension. A papilloma or keratotic horn should be treated as a low grade carcinoma. Correctly administered, roentgen and radium therapy are as effective as surgery in controlling the primary lesion in cancer of the lip or skin. The first series of roentgen or radium treatments must be correctly applied if success is to be attained, as the lesion will never respond as well to subsequent irradiation of equal intensity. This loss of radiosensitivity is due to impaired blood supply and fibrosis of the bed of the tumor. Radiotherapy usually gives a better cosmetic result than surgery and better preservation of function, particularly in the large papillary tumors. Roentgen and radium therapy give essentially the same biologic effect and differ primarily in distribution of intensities. The therapeutic agent will depend on the gross morphologic changes of the lesion, history of previous treatment, the grade of the tumor, the antipathies of the patient and the experience of the therapist. The small superficial lesions are treated by low voltage x-rays or by radium plaque. The infiltrating cancers are treated by intermediate voltage x-rays supplemented by interstitial radium in the deeper lesions. The large papillary tumors are treated by intermediate or high voltage, lightly filtered x-rays supplied

mented by interstitial radium through the base of the tumor. Occasionally the pendulous portion of the large tumor may be ablated to expose the base, but this is not necessary. In the ulcerating destructive lesion with extensive sloughing away of the lip, the author prefers immediate wide surgical excision followed directly by plastic repair. Local invasion of bone is treated by electrocoagulation with or without local excision. In persistent or recurrent carcinoma after inadequate radiotherapy, surgical resection, in view of acquired radioresistance, is generally advised. A radiation ulcer which persists after four months is best resected and plastically repaired. Metastases from cancer of the lip occur first in the submaxillary and submental nodes and rarely in the cervical nodes without gross involvement of the suprahyoid triangles. Cancers arising at the corners of the mouth tend to metastasize unusually early. Enlargement of lymph nodes suggests metastases but frequently is due to inflammation secondary to ulceration and infection of the cancer. Metastases are present in about 25 per cent of patients with palpably enlarged but movable nodes. Metastases will develop in about 10 per cent of patients showing no initial adenopathy. The prospects of a "five year cure" are from 90 to 95 per cent without apparent metastases, 33 1/3 per cent with an early single focus of metastasis in the suprahyoid structures and only 1 per cent after metastases are present in the cervical lymph nodes.

New England Journal of Medicine, Boston

222:699-738 (April 25) 1940

- Rationale and Technic of Sympathectomy for Relief of Vascular Spasm of Extremities. R. H. Smithwick, Boston.—p. 699.
Compressions of Vertebral Bodies During Convulsive Therapy: Preliminary Note Regarding Their Prevention. E. Friedman, A. L. Brett and E. C. Vogt, Waltham, Mass.—p. 704.
Relation Between Leukemia and Tuberculosis: Report of Case. H. Ulrich and H. Parks, Boston.—p. 711.

North Carolina Medical Journal, Winston-Salem

1:177-228 (April) 1940

- Application of Medical Science to the Individual. G. C. Robinson, Baltimore.—p. 177.
Carcinoma of Bronchus: Some Findings in Twenty Cases. J. A. Harrill, Winston-Salem.—p. 180.
Metrazol in Treatment of Mental Disease: Report on Its Use at the State Hospital. R. H. Long, Morganton.—p. 184.
Diagnosis and Treatment of Anemias. R. P. Morehead, Wake Forest.—p. 187.
The Mental Hygiene of Childhood in the Public Health Program. R. S. Crispell, Durham.—p. 190.
Newer Knowledge of Vitamins. Victoria Carlsson, Greensboro.—p. 195.
Diabetic Coma. P. F. Whitaker and K. P. Turrentine, Kinston.—p. 201.
Prophylactic Measures of Proved Value in Some Infectious Diseases. J. B. Sidbury, Wilmington.—p. 204.
Distribution of Syphilis Among Patients in Pediatrics and Obstetric Practice. D. E. Robinson, Burlington; W. B. Perry, Jacksonville; H. R. Germer, Winston-Salem, and G. M. Leiby, Washington, D. C.—p. 208.
The Place of Education and Public Health in Cancer Control. C. C. Carpenter and R. P. Morehead, Wake Forest.—p. 210.

Northwest Medicine, Seattle

39:119-156 (April) 1940

- Certain Biologic Aspects of Cancer. N. A. Womack, St. Louis.—p. 123.
Metrazol in Treatment of Psychoses. D. C. Burkes, Portland, Ore.—p. 127.
*Nitrogen Gas Convulsive Therapy. C. Halvorsen, Fort Steilacoom, Wash.—p. 130.
Practical Approach to Anxiety Tension States. H. H. Dixon and G. B. Haugen, Portland, Ore.—p. 132.
Pediatric Treatment of the Acute Ear. N. W. Klein, Seattle.—p. 135.
Problems in Industrial Medicine: Some Social and Economic Aspects. H. L. Blosser, Portland, Ore.—p. 137.

Nitrogen Gas Convulsive Therapy.—Halvorsen used pure nitrogen in the convulsive treatment of schizophrenic and involuntary depressions. He believes that for patients in the upper age brackets with brittle bones gas convulsions have a wider margin of safety than convulsant doses of metrazol. Gas convulsions are less severe and therefore the dangers of vertebral and extremity fractures are lessened. The patient is given insulin sufficient to produce coma and in about two hours, when myoclonic jerks occur, pure nitrogen gas is administered by mask through a rebreathing bag. All mask outlets are closed. No atmospheric air is admitted. The lime filter is shut off. In

from one to two minutes cyanosis appears and gradually deepens. Tonic stiffening begins on an average of from three to four minutes, noticeable first in the small muscles of the eye, fingers and toes. The tonic convulsion includes all the body muscles during the next thirty seconds. The end point of maximal tonic spasm is apnea due to respiratory muscle spasm when the mask is removed and the patient is turned to the prone position. This serves to drain saliva and prepare the patient for artificial respiration. The apnea is permitted to last as long as it can to accentuate the asphyxia. The patient's color returns to normal within from five to ten seconds after respiration begins and sufficient glycogenolysis usually follows to neutralize the insulin and awaken the patient from the coma. On awakening, the patient eats his withheld breakfast with relish. A tendency toward jovial sociability replaces the pretreatment dulness. Out of twenty-two convulsions given seven patients one patient had a headache. There have been no osseous injuries and while muscular stiffness occurs this is not the extreme soreness that follows metrazol convulsions. Rapid improvement toward normal personality occurred and this without the reactions of fear that metrazol produces. Nitrogen produces anoxemia (the principle of shock therapy) which leads to a tonic convulsion.

Ohio State Medical Journal, Columbus

36:481-584 (May) 1940

- Common Errors in Diagnosis of Heart Conditions. A. C. Ernest, Cleveland.—p. 497.
Some of the Psychiatric Problems Encountered by the General Practitioner. Dorothy E. Donley, Columbus.—p. 501.
Chemotherapy of Streptococcal Infections. C. F. Garvin, Cleveland.—p. 504.
Chemotherapy of Puerperal Sepsis. A. Cline, Dayton.—p. 509.
Prenatal Care in General Practice. D. Macdonald, St. Catharines, Ont.—p. 511.
Treatment of Giardiasis. A. A. Hall, Columbus.—p. 514.
Reinfection in Syphilis. G. E. Clarke and E. L. Glicksberg, Cincinnati.—p. 517.
Abdominal Pregnancy: Report of Case at Full Term. J. R. Sprague and M. R. Chappel, Athens.—p. 520.
Eye Changes in Pregnancy. B. R. Sakler, Cincinnati.—p. 522.
Recognition of Skin Cancer. H. Nieman, Dayton.—p. 525.
Interpretation of Blood Sugar Figures. H. J. John, Cleveland.—p. 527.
Acute Abdominal Surgery in Childhood. P. W. Sutton, Cincinnati.—p. 529.

Oklahoma State Medical Assn. Journal, Oklahoma City

33:1-58 (April) 1940

- Traumatic Affections of Nose. G. H. Kimball and N. R. Drummond, Oklahoma City.—p. 1.
Principles in Treatment of Acute and Chronic Syphilis. J. A. Kolmer, Philadelphia.—p. 4.
Study of Infant Mortality in Oklahoma, 1934-1938. P. J. Collopy and J. C. Rose, Oklahoma City.—p. 9.
Some Observations in Appendicitis. E. B. Neff, Oklahoma City.—p. 14.
Indications for Surgery in Treatment of Gastric and Duodenal Ulcer. M. F. Jacobs, Oklahoma City.—p. 16.

Philippine Medical Association Journal, Manila

20:61-126 (Feb.) 1940

- Curability of Ileocecal Tuberculosis by Radical Excision. G. Santos-Cuyugan, F. S. Guerrero and P. T. Nery, Manila.—p. 61.
*Rare Bacterial Endocarditis Observed Among Culion Lepers. M. B. Lara, Culion.—p. 69.
Diffuse Carcinoma of Stomach (Linitis Plastica) with Secondary Krukenberg Tumor of Ovary. C. Monserrat, Manila.—p. 75.
Objectives in Teaching Physiology. E. Bulatao, Manila.—p. 79.
Dental Survey: Preliminary Report. G. B. Felizardo, M. Y. Matias and A. M. Carreon, Manila.—p. 83.

Bacterial Endocarditis Among Lepers.—According to Lara, the most frequent type of endocarditis among lepers in Culion is that caused by a gram-negative diplococcus bacillus which Solis had invariably obtained in blood cultures from certain cases of septicemia. This organism produces an infection of two to four weeks' duration, with the development of large valvular vegetations resulting in septic embolic phenomena in the spleen and the kidneys, with fever, leukocytosis, secondary anemia and an invariably fatal outcome. The incidence of the disease is higher than with other types of bacterial endocarditis. Current books on pathology, bacteriology and internal medicine make no mention of it. This type of endocarditis occurs in only one place in the world—Culion, Philippine Islands. Its occurrence in a small number of the several thousand lepers confined in the colony, as well as its distinct morphologic and cultural

characteristics, leaves no doubt that it is an entirely different organism. No distinctive epidemiologic peculiarities are apparent. How the organism enters the body is not known. The disease occurs in lepers whether they have ulcers or not. The microscopic appearance of the valvular vegetations is that of a superficial layer of fibrin in which are enmeshed erythrocytes and leukocytes, many of which are in a degenerating condition. Beneath this layer is a dense bacterial growth and, still deeper, a formless debris of fibrin, erythrocytes, leukocytes and probably dead bacteria. The rest of the endocardium and the epicardium is studded with petechial hemorrhages or larger ecchymoses. An acute myelomalacia is the rule. The spleen is enlarged and softened, with multiple red or pale infarcts on its outer parenchyma. The liver and the kidneys are enlarged, soft and pale. The peritoneum may be involved in a septic peritonitis, particularly that portion adjacent to a surface infarct of the spleen. There is a secondary anemia and a leukocytosis. The adrenals present acute infectious softening. The causative organisms are readily isolated by blood cultures. Smears and sections always show their presence in the valvular vegetations, less constantly in the parenchyma and in the infarcts in the spleen. Quite suddenly, without any history of an infected wound, the disease is ushered in with general body and joint pains, fever and headache. In about a week a moderate to high fever, remittent or intermittent, ensues and probably some precordial pain. A blood culture at this time will reveal abundant numbers of the organism. The precordial complaint becomes more marked every day, and cardiac murmurs appear. Embolic phenomena appear at various places, most constantly in the spleen, which is enlarged. No medicine available and tried in Culion was able to save a single patient. Treatment consists of careful and diligent nursing and the relief of symptoms.

Psychiatric Quarterly, Utica, N. Y.

14:231-454 (April) 1940. Partial Index

- Psychopathic Personality Among the Mentally Defective. E. J. Humphreys, Thicells, N. Y.—p. 231.
Neuropathology of Benzedrine Poisoning. P. G. Schube and N. Raskin, Boston.—p. 264.
Simple Experimental Device for Prediction of Outcome of Insulin Treatment in Schizophrenia. Z. Piotrowski, New York.—p. 267.
Therapeutic Considerations in Psychoses of Old Age. G. F. Eitling, Orangeburg, N. Y.—p. 274.
Determining Prognosis in Involutional Psychoses. J. A. Brussel, Brentwood, N. Y.—p. 301.
Injection Treatment of Varicose Veins in a State Hospital. M. A. Yost, Buffalo.—p. 307.
Testosterone in Psychotic Male Homosexuals. H. S. Barahal, Kings Park, N. Y.—p. 319.
Personality Factors in Alcoholic Psychoses. P. H. Hoch, Ward's Island, N. Y.—p. 338.
Therapeutic Problems in the Alcoholic Psychoses. C. E. Howard and H. M. Hurdum, Hudson, N. Y.—p. 347.
Relative Effects of Phenobarbital and Sodium Bromide as Anticonvulsants in Epileptic Psychoses. R. W. Southerland, Brentwood, N. Y.—p. 382.
Metrazol Therapy in the Face of Severe Physical Disorders. G. W. Robinson Jr. and P. Shelton, Kansas City, Mo.—p. 383.
Force Required to Crush Vertebrae: Its Probable Mechanical Relation to Postmetrazol Fracture. W. Furst, Norristown, Pa.—p. 397.
Alcoholism, Its Frequency, Etiology and Treatment. W. A. Strong, Willard, N. Y.—p. 403.

Public Health Reports, Washington, D. C.

55:667-710 (April 19) 1940

- *Tularemia (Rabbit Fever).—p. 667.
Effect of Petroleum Ether Extract of Mouse Carcasses on Skin Tumor Production in C57 Black Mice. J. J. Morton and G. B. Mider.—p. 670.
Bacterium Tularensis: Its Persistence in Tissues of Argasid Ticks *Ornithodoros Turicata* and *Ornithodoros Parkeri*. G. E. Davis.—p. 676.
Ticks (*Ornithodoros* Spp.) in Arizona Bat "Caves." C. B. Philip.—p. 680.
Studies on Trichinosis. VIII. Antigenic Phase of Trichinosis. J. Bozicevich and L. Dettre.—p. 683.
Occurrence of *Anopheles Darlingi* Root in British Honduras and Guatemala. W. H. W. Komp.—p. 693.

Tularemia.—This article reports 2,088 cases of tularemia with 139 deaths which occurred in the United States during 1938. Wild rabbits and hares are the direct cause of more than 90 per cent of cases in human beings in the United States. Horseflies have caused cases in Utah and wood ticks in Montana and the surrounding states. The dog tick has caused cases, principally in the Southern states. Contact with sheep has

caused cases in the Northwest among shearers, butchers and herders, the infection entering the hands from contact with wood ticks and tick feces located in the wool. Sheep are only slightly susceptible. Insect bites (species undetermined) caused tularemia. One infected person had picked ticks from a dog and crushed them with his fingers. Skinning or dressing of tree squirrels, opossums, sage hens, coyotes, deers, red foxes, bull snakes, quails, ground hogs, muskrats, hogs or skunks has been followed by tularemia. Scratches or bites from cats or raccoons, dissection of infected laboratory animals or eating of insufficiently cooked wild rabbit meat has caused tularemia. A water-borne epidemic was reported in 1935 from Russia. Early in 1940, officers of the U. S. Public Health Service reported that water in three streams in Montana had been found to be contaminated with *Bacterium tularensis*. The organism may be transmitted from one animal to another and from animal to man by the bite of insects, notably the wood tick, the dog tick and the deer fly. The pelts of infected rabbits and other animals may also convey the infection. About three and one-half days after exposure illness begins suddenly with headache, chilliness, vomiting, fever, prostration and aching pains all over the body. The symptoms are often mistaken for those of influenza. The sore, usually on the hand, develops into an ulcer, and the nearby lymph glands, at the elbow or in the armpit, become enlarged, tender and painful and later may develop into abscesses. Illness and fever last for about three weeks. Convalescence is slow and is characterized by great weakness and disability, which may continue for two or three months. Most patients recover without permanent ill effects, but about 5 per cent die, notably those in whom pneumonia develops. One attack of the disease confers immunity. Hunters, vacationists, butchers, housewives and laboratory workers who handle rabbits and other wild game are especially exposed to tularemia. A wild rabbit should never be handled with bare hands. Only immune persons should be employed in laboratories. The infected meat is rendered safe as food by thorough cooking. Refrigeration for ordinary periods does not kill the tularemia organism. There is no specific preventive or curative treatment for the disease.

55:711-750 (April 26) 1940

- Administrative Factors Involving Effectiveness of Communicable Disease Control. E. A. Lane.—p. 711.
Cerebrospinal Pathology of Experimental Poliomyelitis in Eastern Cotton Rat, *Sigmodon Hispidus Hispidus*, and in White Mouse, *Mus Musculus*. R. D. Lillie and C. Armstrong.—p. 718.
Note on Pathology in Monkeys of the Lansing Strain of Poliomyelitis Virus Before and After Passage in Cotton Rat. J. H. Peers.—p. 726.
Highly Virulent Strain of Rocky Mountain Spotted Fever Virus Isolated in the Eastern United States. N. H. Topping and R. E. Dyer.—p. 728.
*Cancer Mortality in the United States According to Site, by Sex and Age, 1938.—p. 731.

Cancer Mortality in the United States.—Statistics recently issued by the U. S. Bureau of Census record a total of 149,214 deaths from cancer in this country in 1938; 69,857, or 47 per cent, of these occurred in men and 79,357, or 53 per cent, in women. During the four years 1934-1938 the increase in recorded mortality from cancer amounted to 10.5 per cent, as compared with an estimated increase of 2.8 per cent in the population. An increase of 13 per cent is shown for men as compared with 9 per cent for women. The largest percentage increase was recorded for cancer of the respiratory system (52 and 39 per cent for men and women respectively), while broad classification groups showed a decrease for cancer of the buccal cavity and pharynx (for both sexes) and cancer of the skin (for men only). Cancer of the digestive tract and peritoneum caused 47 per cent of the total cancer mortality in 1938. The number of deaths from cancer of the various sites in this classification increased 9.3 per cent for men and 6.8 per cent for women during the four years. Deaths from cancer of the genito-urinary organs (uterus excluded) increased by about 20 per cent for both sexes. Cancer of the uterus (which caused 20 per cent of all cancer mortality in women in 1938) increased 4 per cent, while cancer of the breast increased 10 per cent during the four years. Of the 149,214 deaths from cancer 719 were of patients less than 10 years of age, and respectively for the following decades: 743, 1,985, 6,296, 17,477, 31,541, 41,244, 35,871, 12,289, 1,000, and the age of forty-nine patients at death was not stated.

Radiology, Syracuse, N. Y.

34:391-520 (April) 1940

- Roentgen Diagnosis of Strawberry Gallbladder. G. Levene, R. M. Lowman and E. G. Wissing, Boston.—p. 391.
- Modifying Influences of Silicosis and Silicosis with Infection on Healthy Chest. E. P. Pendergrass and P. J. Hodess, Philadelphia.—p. 400.
- Silicotuberculosis as Seen in a Large Industrial Center. B. H. Douglas and E. Tompkins, Detroit.—p. 405.
- X-Ray Study of Effects of Industrial Gases on Human Lung. E. E. Evans, Deepwater, N. J.—p. 411.
- Economic Features of X-Ray Protection. L. S. Taylor, Washington, D. C.—p. 425.
- Preliminary Report of Effect of X-Rays on Tumor of Known Genetic Constitution. M. C. Reinhard and S. G. Warner, Buffalo.—p. 438.
- Innervated Appendicular Stumps Roentgenologically Simulating Polypoid Neoplasms. H. M. Weber and C. A. Good Jr., Rochester, Minn.—p. 440.
- *Roentgen Therapy for Painful Conditions of Bones and Joints. H. C. Ochsner and E. B. Mumford, Indianapolis.—p. 444.
- Radium Therapy in Polypoid Ethmoiditis. G. A. Robinson, New York.—p. 449.
- Distribution of Radiation in Pervaginal Roentgen Therapy. M. C. Morrison, London, Ont.—p. 451.
- Experiences with Compression Device in Examinations of Alimentary Tract. R. Golden and P. C. Swenson, New York.—p. 457.
- Some Uses of Spot Film in Roentgen Ray Examination of Gastrointestinal Tract. J. C. Bell, Louisville, Ky.—p. 469.
- Value of Upright Position in Gallbladder Examinations. Alice Ettinger, Boston.—p. 481.
- Polyps of Large Bowel. E. L. Jenkinson and W. L. Waskow, Chicago.—p. 489.
- Simplified Planigraphy. D. Wheeler and E. W. Spencer, St. Boniface, Man.—p. 499.

Roentgen Therapy for Bone and Joint Pains.—Ochsner and Mumford report the results of roentgen therapy on ninety patients with osseous and joint pain from trauma, arthritis and infection. Of fifty-two suffering from pain as a result of trauma, twenty-seven had fractures, fourteen trauma but no fracture, five painful joints following surgical procedures, four were probably due to muscular strain, and two had painful extremities with limitation of joint motion following infected burns. Best results were obtained in cases of postoperative pain. Pain disappeared in only one of the patients with no specific injury other than possible muscular strain and three experienced no improvement. Of the twenty-seven patients with painful joints following fracture, 56 per cent obtained improvement while 64 per cent of the group with traumatic injuries but no fracture were improved. Amelioration of pain and diminution in stiffness occurred most frequently during treatment but in a number of instances was not appreciable until weeks afterward. Only 7 per cent had a temporary exacerbation of symptoms. In the traumatic group, with or without fracture, the improvement was in most instances permanent, although a few patients had recurrence of symptoms after three or four weeks. Two or even three courses of treatment were required to obtain optimal benefit. Of thirty-five patients suffering from arthritis bursitis, fibrositis, vertebral osteoporosis or sciatic neuritis, twenty-nine obtained some improvement. Eighty-seven per cent of the twenty-three patients with atrophic or hypertrophic arthritis obtained relief; in the atrophic group the improvement was marked in all but one of eight patients, and this patient was slightly improved. In general, more than one course of treatments was recommended for arthritis because of its chronic and recurrent nature. The effectiveness of roentgen therapy for cellulitis that sometimes follows dental extraction was demonstrated by the prompt relief of discomfort in one case. All patients were treated with roentgen rays generated at 200 kilovolts and 25 milliamperes of current. A filtration of 0.5 mm. of copper and 1 mm. of aluminum was used, with a skin target distance of 50 cm. and fields varying in size according to the part treated. Four applications of 100 roentgens have been given with an interval of two or three days between treatments. While the authors do not regard the method as a cure-all, they believe that more improvement was obtained than could have been effected by other therapeutic measures.

Rhode Island Medical Journal, Providence

23:61-74 (May) 1940

- Pawtucket Medical Association. T. A. Krollick, Pawtucket.—p. 61.
- Management of Obstetric Hemorrhage. B. H. Buxton, Providence.—p. 63.

Rocky Mountain Medical Journal, Denver

37:313-392 (May) 1940

- Significance of Minor Signs of Indigestion. I. S. Cutter, Chicago.—p. 331.
- Carcinoma of Cervix Uteri. K. D. A. Allen, Denver.—p. 335.
- Endocrine Interrelationships as Applied to Human Diabetes. A. Marble, Boston.—p. 340.
- Urethral Calculus. W. G. Schulte, Salt Lake City.—p. 344.
- Use of Insulin-Free Pancreatic Hormone in Treatment of Certain Types of Erythematous Skin Diseases: Preliminary Report. J. Rowlett and E. W. DeKay, Laramie, Wyo.—p. 347.
- Stabilizing the Graduate Staff. Sister Mary Carolyu, Colorado Springs, Colo.—p. 350.

Surgery, St. Louis

7:485-646 (April) 1940

- *Relative Value of Catgut, Silk, Linen and Cotton as Suture Materials. W. H. Meade, Jackson, Mich., and A. Ochsner, New Orleans.—p. 485.
- Persistent Abdominal Fecal Fistulas Due to Regional Ileitis. L. Ginzburg, New York.—p. 515.
- Congenital Anomalies of Anus and Rectum. E. A. Crowell and J. W. Dulin, Iowa City.—p. 529.
- Lymphoid Tumors of Colon and Rectum: Report of Case of Simple Lymphoma of Rectum. H. T. Hayes, H. B. Burr, Houston, Texas, and L. T. Pruitt, Beaumont, Texas.—p. 540.
- Infections of Hand Following Human Bites. R. Cohn, San Francisco.—p. 546.
- Pneumococcal Peritonitis: Its Present Status. L. E. Arnold, Dallas, Texas.—p. 555.
- Enzyme Studies in Edema of Pancreas and Acute Pancreatitis. H. L. Popper, Chicago.—p. 566.
- Diffusion of Pancreatic Enzymes Through the Intestinal Wall in Heus. H. L. Popper, Chicago.—p. 571.
- Effect of Predigested Food on Experimental Peptic Ulcer. E. S. Emery Jr., R. Zollinger and R. B. Rutherford, Boston.—p. 574.
- Technic for High Intestinal Fistula: Experimental Method. R. Zollinger, E. S. Emery Jr. and R. B. Rutherford, Boston.—p. 579.
- Peritoneoscopy in Gunshot and Stab Wounds of Abdomen. J. E. Hamilton, Louisville, Ky.—p. 582.
- Histopathology of Old Anastomotic Wounds of Gastrointestinal Tract. G. F. Archer, Rochester, Minn.—p. 589.
- Syndactylism with Absence of Pectoralis Major. J. B. Brown and F. McDowell, St. Louis.—p. 599.
- Renal Colic Caused by Early Obstruction of Lower Urinary Tract: Report of Nine Cases. H. M. Weyrauch Jr., San Francisco, and S. McMahon, Durban, South Africa.—p. 602.

Relative Value of Suture Materials.—Meade and Ochsner studied the tensile strengths of catgut, silk, linen and cotton, and the tissue reaction and wound healing caused by each. Catgut was demonstrated to be (1) a strong suture before being placed in tissue, (2) absorbed at a variable rate which depends on its size, the chemicals present and the reaction of the individual, (3) a possible source of allergic reactions, (4) a deterrent in wound healing, (5) unreliable when knotted under tension unless triple or quadruple throws knots are tied and (6) above all, a possible cause of wound infection. Nonabsorbable suture materials can always be heat sterilized; they produce no allergic reactions, allow rapid wound healing and reliable square knots can be tied. While silk and linen show early decrease in tensile strength as compared to cotton, they also are stronger before implantation. Cotton and linen, as products of the field, may contain spore-forming anaerobic pathogens, but the average threads obtained on the market have not contained any pathogenic organisms. Silk contains the ordinary pyogens, but anaerobic organisms were not found. Chemically treated silk and catgut are proteins; the former, being nonabsorbable, excites must less tissue reaction. Sinuses may develop in wounds sutured with silk in the presence of infection (not contamination) and they will not heal until the suture is removed or expelled. There is little difference in the wound healing when serum-proofed and nonserum-proofed silk is used. Braided silk has greater tensile strength than twisted silk. Cotton shows much less tendency for tissue ingrowth than silk and therefore, in the presence of infection, is less likely to cause sinuses. Cotton is proposed as a pliable, easily sterilized, nonirritating, inexpensive suture of sufficient strength in the recommended sizes for most surgical procedures. It has been used in ninety-one surgical procedures, primary healing having taken place in eighty-eight. Halsted's silk technic is recommended not only for silk but also for cotton. The reaction of tissue to the implanted suture was graded according to the amount and persistence of leukocytic infiltration, amount of serum and fibrin, the appearance time of fibroblasts and length of time necessary to produce final healing. Catgut, by producing the most reaction and slowest healing, was graded 4, linen 3, silk 2, and cotton, producing the least reaction and earliest healing, 1.

Western J. Surg., Obst. & Gynecology, Portland, Ore.

48:205-274 (April) 1940

- *Trigeminal Neuralgia: Treatment by Noyocain Injection of Trigger Zones; Pain Sources. W. K. Livingston, Portland, Ore.—p. 205.
- Actinomycosis in Hawaii. H. C. Gotshall, Honolulu, Hawaii, and C. J. Wilen, Hilo, Hawaii.—p. 212.
- Relationship of Some Recent Advances in Basic Sciences to Gynecology. H. C. Falk and G. Blinkin, New York.—p. 218.
- Management of Occiput Posterior Position, with Special Reference to Pelvic Architecture. A. Weinberg, Far Rockaway, N. Y.—p. 227.
- Cesarean Section with Peritoneal Exclusion and Ligation of Fallopian Tubes. S. S. Rosenfeld, New York.—p. 232.
- Mutation of Genes by Irradiation. R. H. Fagan, Los Angeles.—p. 239.
- Bubis Hysterectomy Knife. J. L. Bubis, Cleveland.—p. 243.
- Surgical Approach to Hypertension: End Results of Sympathetic Surgery and X-Ray Therapy in Hypertension. F. M. Findlay, San Diego, Calif.—p. 244.
- *Metabolic Disturbances Following Thyroidectomy. C. A. Nafe, Indianapolis.—p. 253.

Trigeminal Neuralgia.—Livingston states that injections of procaine hydrochloride for facial pain have given encouraging results in four typical cases of trigeminal neuralgia. He believes that the peripheral lesion acts merely as an irritative focus from which the centers are continually bombarded by afferent impulses. This bombardment eventually creates an abnormal internuncial activity within the thalamus, which discharges explosively whenever a particularly strong impulse or combination of impulses arrives at the proper instant. In the fully developed syndrome of trigeminal neuralgia the slightest stimulation of the trigger point might be sufficient to detonate the pain paroxysm. But if the afferent impulses cease because the source of irritation is removed or because the messages are repeatedly interrupted, the abnormal activity within the thalamus tends to subside and the paroxysmal pain disappears. The concept is hypothetical but is consistent with the following facts: 1. Patients with symptomatic trigeminal neuralgia, in whom the pains are indistinguishable from the idiopathic type, have been cured by removal of pathologic conditions of the teeth, jaws or sinuses. 2. Myositis of facial muscles may cause typical tic douloureux, and the pain disappears when the myositis is treated. 3. Alcohol injection of the main divisions of the fifth nerve or evulsion of more peripheral portions have resulted in a cure for variable periods of time. 4. The pain attacks starting in the distribution of one division of the nerve tend to spread until they eventually involve one or both of the other divisions. 5. The alcohol-injection of the division first involved in the pain process may stop the pain in other divisions as well. 6. Repeated injections of procaine hydrochloride into trigger points may abolish the pain for variable periods of time.

Metabolic Disturbances Following Thyroidectomy.—Nafe summarizes end results of thyroidectomy as practiced by several surgeons during the last few years at the three Indiana University hospitals. These surgeons are in accord with the general tendency toward subtotal thyroidectomy; leaving a small amount of tissue, particularly in diffuse hyperplasia or exophthalmia. The surgeon need not be quite as conservative in removing hyperplastic goiters of young patients as he formerly was. The incidence of recurrences may be improved by more radical surgery, but the small percentage of recurrences does not justify a total thyroidectomy. While they have not done a total thyroidectomy, a hypothyroid state has developed rather frequently following a radical type of subtotal thyroidectomy. The major portion of these patients readjust themselves in a few months, probably by hypertrophy of the remaining gland, and only a few need thyroid extract permanently. The medical staff has stated that they prefer to treat a hypothyroid patient following surgery rather than one who still has hyperthyroidism. Sufficient thyroid tissue is left so that most patients will have a normal or slightly subnormal basal metabolic rate. They believe that by limiting surgical intervention to patients with definite thyroid disease the incidence of many indefinite symptoms that follow such intervention will be lessened. Many of these symptoms may be due to metabolic disturbances, particularly those of mild hypothyroidism. Varying degrees of hypothyroidism or myxedema occur following thyroidectomy and are frequently overlooked. Many patients are relieved by careful administration of thyroid. Severe myxedema that cannot be satisfactorily managed is occasionally an end result. It should not be precipitated intentionally by complete thyroidectomy.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Radiology, London

13:109-148 (April) 1940

- Radiologic and Clinical Study of Aortic Aneurysm. G. Friedlaender.—p. 109.
- Radiographic Mensuration and Localization: New Method. J. P. Hederman.—p. 123.
- Radiography of Subarachnoid Cisternae at Base of Brain. A. Schüller.—p. 127.
- Note on Clinical Dosimeters. C. E. Eddy.—p. 130.
- Physical Investigation of Radiation from Low Voltage X-Ray Tube (Cautery Technic). L. F. Lamerton.—p. 136.
- Model Head and Dose Finder. F. W. Spiers.—p. 147.

British Journal of Urology, London

12:1-74 (March) 1940

- Complicated Injuries of Urinary Tract. G. Gordon-Taylor.—p. 1.
- Injuries of Urethra. A. R. Thompson.—p. 29.

British Medical Journal, London

1:601-644 (April 13) 1940

- The Life and Work of Moynihan. E. W. H. Groves.—p. 601.
- Isolation of Typhoid, Paratyphoid and Dysentery Bacteria from Feces and Urine: Comparative Study of Some Culture Media. A. Charlotte Ruys.—p. 606.
- Common Cause in Functional Insanities. T. C. Graves.—p. 608.
- Occipitoposterior Position: Review of 415 Cases. J. B. Dawson.—p. 612.
- Report on Case of Psittacosis. R. B. McMillan.—p. 613.

1:645-678 (April 20) 1940

- Kidneys and Sex Hormones. V. Korenchevsky and M. A. Ross.—p. 645.
- The Life and Work of Moynihan. E. W. H. Groves.—p. 649.
- *Closed Plaster Method of Treatment: Account of Its Use During the Spanish War. J. D'Harcourt, A. Folch and A. Oriol.—p. 652.
- Schick Immunity After Active Immunization Compared with That Following Diphtheria. J. F. Warin.—p. 655.

Closed Plaster Method of Treatment.—During the Spanish Civil War, D'Harcourt and his associates were personally responsible for the treatment of 7,500 fracture casualties and they followed up a further 17,000 cases treated in other centers. As a result of their experience the closed plaster method of treating fractures was extended to the treatment of injuries to soft tissues in cases in which there was much loss of substance. The method was used both at an early stage (within six or eight hours of the infliction of the wound) and at a later stage when the wound had already begun to granulate. Only slight variations in technique were required for the two types of cases. The technique permits a high degree of conservative treatment. Thus, in the Battle of Ebro, a surgical unit dealt with 120 casualties, and in only five cases were amputations necessary. At the Vallcarca Hospital, Barcelona, out of 5,000 wounded treated in one year (almost exclusively fracture cases) only twenty-six secondary amputations were performed, and only few serious complications were encountered. There were twenty cases of gas gangrene, twelve of which showed vascular lesions. The number of deaths among the 5,000 was thirty-seven, fifteen due to gas gangrene, seventeen to septicemia and five to secondary hemorrhage. There were no instances of nonunion or malunion from a faulty position of the fragments, although in a number of comminuted fractures many broken pieces of bone had lost all nutrient connection. The few cases of nonunion have been in the forearm and have occurred when an extensive loss of substance was present. The cases of osteomyelitis complicating fractures have not been serious but they were persistent. The closed method of treatment did not have any definite detrimental or beneficial effect on this complicating sequel of gunshot wounds. The method reduces the period of healing, particularly that of the preliminary stage of disintegration. The strict immobilization of the wound insures a faster growth of epithelium. The treatment eliminates the painful daily dressings and thereby prevents the distribution and absorption of products of disintegration from constant handling. Proteolysis does not occur. The method does not interfere with the natural process of healing by the application of antiseptics, which, however

destructive they may be to bacteria, are also destructive to those biologic products which promote healing. Dehydration due to evaporation at the surface of large wounds is considerably reduced, and this in itself is an important factor in the healing of the wound and in the restoration of the patient's health.

Lancet, London

1:725-770 (April 20) 1940

- The First Seven Months Study of Wartime Mortality in London. P. Stocks.—p. 725.
Mental Illness as Clue to Normality. S. Taylor.—p. 730.
*Vitamins as Supplement to Sanoecrysin in Arthritis. K. Secher.—p. 735.
Posture for Thigh Amputation: Note on Sepsis. A. K. Henry.—p. 736.
Pellagra, Polyneuritis and Beriberi Heart. S. B. B. Campbell and R. S. Allison.—p. 738.
Treatment of Varicose Ulcers with Histamine Iontophoresis. S. V. Gould-Hurst.—p. 739.

Vitamins as Supplement to Sanoecrysin in Arthritis.—Secher directs attention to the importance of using large doses of vitamins A, B and C as a supplement to treatment with sanoecrysin (a double thiosulfate of sodium and gold) in patients with arthritis. Many of the reactions brought about by treatment with sanoecrysin are similar to those due to a deficiency of vitamins and the diet of the general population is often deficient in these. The importance of the administration of vitamins during treatment with sanoecrysin is confirmed as regards thrombopenia and cutaneous reactions, in which ascorbic acid acts beneficially. Decreased tolerance of carbohydrates can be abolished in many infectious diseases by increasing the amount of ascorbic acid in the blood.

Medical Journal of Australia, Sydney

1:501-534 (April 13) 1940

- The Future of Medical Practice. S. Boyd.—p. 501.
*End Results of Surgical Treatment of Thyrotoxicosis. H. R. G. Poate and N. R. Wyndham.—p. 505.
Some Recent Views on Varicose Veins of Lower Limb. C. H. W. Lawes.—p. 509.
Shelf Operation for Congenital Dislocation of Hip. E. F. West.—p. 513.
Morton's Metatarsalgia: Neuritis of Fourth Digital Nerve. L. O. Betts.—p. 514.

End Results of Surgical Treatment of Thyrotoxicosis.—The clinical material on which Poate and Wyndham base this report consisted of 413 patients observed at the Royal Prince Alfred Hospital from 1925 to 1937. Only 317 were available for follow-up examination from two to fourteen years after operation. Complete freedom from symptoms was obtained in 220 (69.4 per cent), mild symptoms were present in forty-eight (15 per cent) and unsatisfactory results in forty-nine (15.4 per cent). An important lesson learned from the first group was that treatment and careful attention should not cease on discharge from the hospital. It is necessary to watch and advise each patient for about two years during the stage of readjustment. Close cooperation between physician and surgeon is of benefit to both as well as to the patient. Patients with mild symptoms are capable of doing a normal day's work. Their complaints may be due to one of the following: residual thyrotoxicosis, hypothyroidism, hypoparathyroidism, diminished cardiac efficiency, neurasthenia, or causes not associated with the original illness. With careful after-treatment, many of these patients will be included in the group of perfect cures. When mild symptoms are present hypothyroidism is commoner than persistent thyrotoxicosis. One third of the patients have this condition and are responding to thyroid administration. Two patients were successfully treated for hypoparathyroidism. The group with unsatisfactory results includes thirteen patients who died within a few days of operation, six patients who died after leaving the hospital and thirty who are still living but who cannot lead a normal life. Observations on thirty-four patients with auricular fibrillation convinced the authors that fibrillation depends more on the heart than on the thyroid gland. In 59 per cent of such cases normal rhythm was restored. It is impossible to foretell the subsequent condition of the eyes. Examination of fifty patients with pronounced preoperative exophthalmos selected at random revealed the following facts: the eyes of twenty-three patients were normal, of sixteen improved, of six not improved and of two the condition was worse.

Dermatologica, Basel

81:153-216 (March) 1940

- *Parrot's Pseudoparalysis in Pair of Twins of Same Sex. E. Kuznitsky.—p. 153.
Question of Congenital Transmissibility of Venereal Lymphogranuloma. N. Melczer and K. Sipos.—p. 163.
Comparison of Relationship Between Blood Indican and Alkali Reserve in Internal and Dermatologic Syphilologic Cases. B. Ottenstein and R. Ethem.—p. 170.
Sulfanilamide Treatment of Chancroid and Chancroidal Bubo. C. S. Pan and K. L. Yang.—p. 181.

Parrot's Pseudoparalysis in Twins.—Kuznitsky reports that a pair of twins, females, were born one month prematurely with two chorions and two amnions. The mother had latent syphilis with positive reaction. At birth the infants were free of congenital syphilis. In the third and fourth week a slight increase of temperature and on the thirty-eighth day a slightly positive Wassermann reaction were observed. At the age of 6 weeks both twins displayed suddenly the symptoms of Parrot's pseudoparalysis. They had coryza at the same time. The Wassermann reaction became decidedly positive. With antisymphilitic therapy the temperature returned to normal almost immediately and the symptoms disappeared in four weeks. The Wassermann reaction became negative in five months.

Rivista Ospedal. Giorn. di Med. e Chir., Rome

30:57-102 (Feb.) 1940

- *Roentgen Therapy of Fissured Nipples. R. Astolfi.—p. 57.
Calcification of Male Internal Genitalia. G. Parola.—p. 64.

Roentgen Irradiation of Fissured Nipple.—Astolfi reports satisfactory results from roentgen irradiations of fissured nipples in a number of cases observed at the obstetric-gynecologic clinic of Perugia. The irradiations were limited to a field measuring 6 by 8 cm. The tissues surrounding the field of irradiation were protected by dry sterile gauze. The dose for each irradiation was 80 roentgens given with a current of 120 kilowatts through a filter of 1 mm. of aluminum with 2 milliamperes at a focal distance of 23 cm. from the skin. One treatment was generally sufficient. When more than one was necessary, they were given at intervals of three days and varied from two to three in number. No other treatment was administered. The treatment proved harmless to mother and infant. It can be administered to ambulant mothers and does not interfere with lactation. Pain is attenuated and sometimes controlled a few hours after the first irradiation. The fissures are promptly epithelized.

Archiv für Kinderheilkunde, Stuttgart

119:65-112 (March 8) 1940

- Feeding of Prematurely Born Infants. K. Schwartz.—p. 65.
Sudden Deaths in Presence of Congenital Megacolon. W. Jäckli.—p. 76.
Congenital Total Prolapse of Uterus. W. Kiehl.—p. 82.
*Thermobacterium Acidophilum in Therapeutic Experiments on Nurslings and Young Children with Dyspepsia. G. Henneberg.—p. 85.

Thermobacterium Acidophilum in Dyspepsia of Nursling.—Henneberg treated twenty-two nurslings suffering from dyspepsia, one from paratyphoid Breslau infection and one from severe eczema with thermobacterium acidophilum grown in gruels such as oatmeal containing 5 per cent dextrose and incubated for twenty-four hours at a temperature of from 34 to 40 C. The bacteria were thus given in a food which favors their growth in the hope that a further growth might be promoted in the intestine. The infants were given from 10 to 15 cc. of the mixture in from one to three doses of 5 cc. each daily. Later this quantity was increased to from one to three doses of 10 cc. daily, then to two or three doses of 20 cc. and to three doses of 25 cc. The duration of the administration varied. The total quantity of gruel varied between 30 and 2,400 cc. Injurious effects were never observed. The bacterial flora was controlled by means of Henneberg's cover glass-agar method. In eight cases the administration of Thermobacterium acidophilum was followed by a noticeable improvement in the stools and in the clinical course, although the Thermobacterium failed to be detected in large quantities. The clinical improvement was probably caused by the acidifying

effect of *Thermobacterium acidophilum* on the lactic acid contained in the food. It had not been possible to replace the prevailing disease flora by the therapeutically introduced flora. The author thinks that such a result could be expected only after longer treatment.

Chirurg, Berlin

12:113-144 (March 1) 1940

- *Trauma and Diabetes. A. Troëll.—p. 113.
When Is Myelography Indicated? W. Tönnis.—p. 119.
Stereoenzymography of the Foramen Ovale in Bloodless Treatment of Trigeminal Neuralgia. L. Stehr.—p. 122.
Value of Roentgenograms in Rectal Carcinomas. H. Rüd.—p. 126.

Trauma and Diabetes.—Troëll studied the question of somatic trauma as a causative or aggravating agent in diabetes in eight cases, with special reference to eligibility for accident insurance of persons so injured. Trauma which induced a temporary glycosuria or damaged the pancreas directly was excluded from the investigation. The traumas consisted of injuries to the feet, an elbow fracture with facial contusions, injury to the region of the liver and serious injuries to the head and the cervical vertebrae, sustained in a fall from a motorcycle. One patient, a man aged 22, had been medically examined the day before a fall from the bicycle had broken his elbow and bruised his face. No sugar had been found in the urine nor did a familial history of diabetes exist. Injury of the pancreas due to the fall was regarded as improbable. Yet several weeks later a benign diabetes developed that, at the time of writing, was some three years old, requiring insulin dosage and a special diet. In the case presenting serious head and neck injuries (65 years) no glycosuria had been discovered one and one half years after the fall. Yet six months later it was so diagnosed. In two known cases of diabetes the diabetes seems to have retarded the recovery from injuries to the feet. The author believes that severe peripheral lesions to the head, liver and extremities may be assumed to induce genuine diabetes by way of the sympathetic nervous system and, consequently, entitles to accident insurance compensation. The same economic evaluation of accidents, he thinks, should prevail in cases in which latent diabetes may be presumed because of familial involvement and in the diabetes of aged patients whose condition has either been aggravated by the trauma or the healing delayed.

Deutsches Archiv für klinische Medizin, Berlin

186:1-112 (March 7) 1940. Partial Index

- Significance and Utilization of Data Obtained in Work Tests in Research on Clinical Aspects of Pulmonary and Circulatory Disorders. G. Zaeper.—p. 1.
Flocculation of Soluble Proteins of Aorta by Ammonium Sulfate Under Normal and Pathologic Conditions; Method, Experience on Normal Conditions and Principles. G. Schönholzer.—p. 27.
*Investigations on Pulmonary Function in Asbestosis. L. Roemheld, H. Kempf and H. W. Wedler.—p. 53.
Investigations on Vascular Elasticity in Arteriosclerosis: Studies on Elasticity in Healthy Persons and in Patients with Arteriosclerosis with Normal Blood Pressure. B. Steinmann.—p. 71.
*Clinical and Morphologic Considerations of Hodgkin's Disease. W. Tischendorf.—p. 98.

Pulmonary Function in Asbestosis.—According to Roemheld and his associates the relatively slight clinical symptoms of asbestosis are frequently in contrast to serious impairment of function. A divergence between the x-ray appearances and the clinical picture is likewise frequent. The degree of functional impairment which is the decisive factor in the working capacity of the patient is difficult to determine. The authors determined the oxygen consumption during the breathing of air and of oxygen in nineteen cases of asbestosis by means of Knipping's large spiograph. The tests revealed that during rest the lung could not fulfil the task of saturating the blood with oxygen. The authors also determined the respiratory frequency, depth of respiration, respiratory minute volume, vital capacity, respiratory limit and respiratory time quotient. Some of these factors were determined again after ergometrically measured exertions. Electrocardiograms, roentgenograms and thorough clinical examinations were made. There was considerable conformity between the spiographic data and the severity of the clinical picture. The spiographic examination

permits an estimation of the pathologic changes and reveals the extent of pulmonary insufficiency. Failure of pulmonary function is of great importance in asbestosis, because limitation of the respiratory reserve and deficient oxygenation of the blood are the causes of decreased working capacity at a time when their circulation is still able to meet greater demands.

Hodgkin's Disease.—Attention has been called in recent years to the similarity of Hodgkin's disease to a neoplasm. The disease frequently has its origin in a localized area at a site where large quantities of lymphatic tissue are found, such as the mediastinum, the mesenteric lymph nodes or the faucial lymphatic ring. The impression is gained that the disease begins locally and metastasizes like a malignant neoplasm. Tischendorf cites one case the clinical and roentgenologic features of which were like those of a malignant neoplasm. In another case the roentgenologic and clinical signs suggested Hodgkin's disease but the necropsy disclosed a malignant mediastinal tumor. Two cases are cited to demonstrate that the course, and anatomic picture of Hodgkin's disease may greatly resemble a malignant neoplasm. Microscopic examination of a lymph node is a distinct diagnostic advance. Lymph node or tissue puncture presents further advance in diagnosis. Experience with the method in various lymph node disorders convinced the author of its reliability. It is as reliable as lymph node biopsy provided that, besides the tissue smears, one makes histologic preparations from the punctate. Such preparations reveal the large Sternberg giant cells. Typical cases present spindle shaped fibroblasts, large epithelioid and histocytic cells, neutrophils and eosinophils. The tumor-like growth of the lymphomatous tissue with its apparent metastatic involvement and the characteristic morphologic appearances suggest a close relationship to neoplastic disease. The apparently benign course, frequently extending over eight or ten years, may be replaced by a malignant infiltrating growth in the terminal stage. During the benign course the process may simulate a lymphadenosis, but the microscopic examination discloses the true nature. A tumor-like character has been suggested also for leukemia, in which the enlargement of the lymph nodes is the result of the deposition of hematopoietic tissues whereas the glandular swellings of Hodgkin's disease are the result of the deposition of granulomatous tissue. Hodgkin's disease has been regarded as an infectious disease because of the resemblance of its lesions to ordinary granuloma and because of the febrile course. The infectious etiology has not been proved and the assumption of a tumor-like etiology is therefore justified.

Medizinische Klinik, Berlin

36:289-312 (March 15) 1940. Partial Index

- Acute Circulatory Insufficiency During War. H. Dennig.—p. 289.
Surgical Therapy of Wounds During German-Polish War. O. Hoche.—p. 291.
Cutaneous Pigment. H. Fuhs.—p. 294.
*Further Observations on Interrelations Between Sympathetic Endocrine System and Vitamin Economy. W. Stepp and F. Diehl.—p. 296.
Treatment and Prevention of Nephrolithiasis. A. Pierach.—p. 298.
Hemorrhoids. R. Reichle.—p. 301.

Sympathetic Endocrine System and Vitamin Economy.—According to Stepp and Diehl, the endocrine glands are dependent for their function on an adequate vitamin supply. They investigated the carbohydrate metabolism from this point of view. They demonstrated in blood sugar curves following dextrose tolerance tests that it is possible to regulate abnormal sympathetic-hormonal control functions. In hypophysial insufficiency with a tendency to spontaneous hypoglycemia the blood sugar curve, following the dextrose tolerance test, could be normalized by the administration of the total vitamin B complex and of vitamin C. The formerly low apex of the curve was now higher and the abnormally deep hypoglycemic phase could be normalized. They demonstrated by means of patients with abnormal dextrose tolerance curves that the vitamin B complex has a better normalizing effect than vitamin C. The different factors of the B complex were not all equally effective; B₁ was found to be ineffective in spite of its well known relation to the carbohydrate metabolism. The simultaneous administration of riboflavin, nicotinic acid amide and vitamin

B₆ produced normalization. The authors conclude that an adequate provision of the organism with vitamins is essential for the normal functioning of the regulatory processes.

Münchener medizinische Wochenschrift, Munich

87:225-252 (March 1) 1940. Partial Index

- Roentgen Therapy in Dementia Paralytica. F. Bering.—p. 229.
 *Diabetes Mellitus and Pernicious Anemia. W. Beckert.—p. 230.
 Myiasis Interna Due to Hypoderma Lineatum: Case. F. Tebbe.—p. 232.
 Gastrointestinal Neurosis Due to Dysfunction of Eyes. K. Grunert.—p. 234.
 Alkalization Therapy of Psychic Depressions. F. Hoff.—p. 237.

Diabetes Mellitus and Pernicious Anemia.—Beckert reports the simultaneous presence of pernicious anemia in nine (1 per cent) of 900 cases of diabetes. The predominant age level in the nine cases was between 30 and 50 years. Three cases were serious; six were mild. Six cases had been under observation for four years. In five cases the primary existence of diabetes could be verified, pernicious anemia having remained latent for from three to seven years. In one latent case funicular myelosis was discovered. The author did not observe that the presence of either disease led to the aggravation of the other, such as modification of the metabolism. In fact, serious cases of diabetes were observed to be accompanied with light attacks of anemia and vice versa. Only the spinal symptoms seemed to have been intensified. The theories advanced for the concurrent appearance of pernicious anemia in diabetes range from the assumption of an unrelated and fortuitous occurrence to that of gastric achylia frequently observed in diabetes. The infrequent evolution of pernicious anemia in the past is attributed by the author to the earlier decease of diabetic persons in the days when insulin was unknown. Insulin and liver extracts were found to be compatible therapies.

Wiener klinische Wochenschrift, Vienna

53:207-226 (March 15) 1940

- Significance of Intestinal Indole Intoxication in Neuro-Endocrine Enteropathy (So-Called Chronic Enteritis). H. Bohm and R. Basler.—p. 207.
 Changes in Deflections of Electrocardiogram of Hyperthyroidism. W. Brey and S. Zollner.—p. 216.
 *Functional Examination of Kidneys and Intravenous Urography. K. Hutter.—p. 220.

Intravenous Urography.—Hutter maintains that the examination of the total function of the kidney is necessary whenever an intravenous urography is planned, for, if the kidneys are impaired to such an extent that an almost normal elimination of the intravenously administered contrast medium cannot be expected, not only the aim of the urography is unobtainable but there is also the danger of injuring the patient by the prolonged retention of the iodized contrast medium. Volhard's water test is used by the author for the routine examination of the renal function. He also determines residual nitrogen and the indican content of the blood serum, especially if the water test does not seem desirable. The water test was extended by combining it with tolerance tests. After a preliminary water test, the patients are given for two successive days 1,000 cc. of fluid and a prescribed diet and, in addition, 5 Gm. of sodium chloride the first day. The water test is repeated and the residual nitrogen and the indican content of the blood are determined. This makes it possible to detect (1) normally functioning kidneys and (2) kidneys with a latent impairment of the function, in which normal or almost normal values are obtained in the first test, but abnormal values after the tolerance test. Intravenous urography is contraindicated not only in the case of impairment of the total renal function but also in acute nephritis and in patients with a predisposition to thrombosis. It is indicated in phimosis, stricture of the urethra, chronically contracted or acutely infected bladder and stenosis of the ureter. Intravenous urography may not reveal stones, but it is helpful in the detection of hypotonic conditions. The psoas rim symptom is of value in determining whether a hypotonic condition is due to mechanical or to dynamic causes. It is not a case of rivalry between intravenous and instrumental urography; each method has its indications. Kymographic examinations are especially valuable in estimating retroperistalsis.

Nordisk Medicin, Gothenburg

5:425-490 (March 9) 1940. Partial Index

Hygiea

- *Postoperative Causes of Death in Lund Surgical Clinic. G. Petré.—p. 468.
 Tetanus. S. Lindgren.—p. 473.
 More Recent Views on Psychiatric Doctrine of Heredity. E. Essen-Möller.—p. 478.

Postoperative Causes of Death in Lund.—Petré finds that of the 1,265 postoperative deaths after 24,816 surgical operations from 1929 to 1938 53 per cent occurred from the basic disorder, the basic injury or a complication peculiar to the disorder or injury, and 21 per cent from a pulmonary complication, most often pneumonia or pulmonary embolism. Of the patients with fatal pneumonia 86 per cent were 55 or over, almost half were 70 or over, and 68 per cent of those with pulmonary embolism were 60 or over. In the remaining 26 per cent death was due either to wrong or to questionable indication for operation, with some of the patients for various reasons too weak for the operation performed, or to a technically faulty operation or to some special postoperative complication, not pulmonary.

5:491-550 (March 16) 1940. Partial Index

Hospitalstidende

- *Blood Type Determinations in Southern District of Julianehaab, West Greenland (ABO and MN System). V. Fabricius-Hansen.—p. 497.
 New Arc Light with Alternating Current for Medical Use. F. Nielsen and K. G. Hansen.—p. 499.

Blood Types in Southwest Greenland.—Fabricius-Hansen determined the blood grouping of 1,063 persons in this region and found that the distribution of blood types in the pure Eskimos differs from that in the more mixed Greenlanders. Of the former 36.33 per cent were O, 54.64 per cent were A, 5.30 per cent were B and 3.71 per cent were AB, while of the latter 55.05 per cent were O, 36.70 per cent were A, 5.26 per cent were B and 2.99 per cent were AB. Of the pure Eskimos 66.16 per cent were M, 30.97 per cent MN and 2.86 per cent N, which, the author says, confirms his earlier observation that a low N value is an anthropological characteristic of the Greenland Eskimo.

5:551-592 (March 23) 1940. Partial Index

- *Reticulosarcoma and Reticulo-Endotheliosarcoma in Tonsils and Rhinopharynx. S. Ohlsen and A. Jørgensen.—p. 555.

Reticulosarcomas in Tonsils and Rhinopharynx.—According to Ohlsen and Jørgensen reticulosarcomas may occur wherever there is lymphatic tissue. About 40 per cent of the cases are found in the tonsils and about 20 per cent in the rhinopharynx (Greifenstein). Ewing's sarcoma, which originates in the bone marrow, has the same histologic structure as the reticulosarcomas they describe. Ewing's sarcoma is seen in the younger age groups, the reticulosarcoma usually between the ages of 50 and 70. The clinical picture does not differ from that of other primary malignant tumors with the same localization, and as a rule macroscopic diagnosis is impossible. The growth of the tumor may be slow and the tendency to ulceration and necrosis less than in cancer. If the tumor is infected, growth may be accelerated. Reticulosarcomas are highly sensitive to roentgen rays. If there is a suspicious unilateral tonsillar tumor the authors would perform a tonsillectomy rather than wait for the results of microscopic examination of a specimen. Recognition of the tumor in the rhinopharynx is late and difficult, as the symptoms are vague and not characteristic. If diagnosis of reticulosarcoma or reticulo-endotheliosarcoma has been made by microscopic examination of a lymph node from the neck, a small tumor should be carefully looked for in the rhinopharynx. Treatment is protracted roentgen irradiation, to be instituted as early as possible. Nine cases of reticulosarcoma, all localized in one tonsil, are reported; in eight there were ulcerations, in six enlarged regional lymph nodes. In five cases the treatment was primary tonsillectomy followed by roentgen or radium treatment, in four cases roentgen treatment alone. Four patients are well after an observation period of from one and a half to five years. One case is still under treatment. One case of reticulosarcoma and one of reticulo-endotheliosarcoma in the rhinopharynx are described, both fatal.

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TREATMENT OF NEPHROTIC EDEMA

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PHILADELPHIA
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When the progress of medical therapy during the past twenty-five years is discussed, usually reference is made first to diabetes, second to pernicious anemia and third to various states of deficiency. Sometimes advances made in the chemotherapy and immunotherapy of infectious diseases are considered, but rarely is mention made of the great progress achieved in the treatment of patients who have nephrotic edema of moderate or extreme degree. Not long ago it was necessary for such patients to be hospitalized for many months before elimination of excessive fluids was accomplished, if it was accomplished at all. Thanks to the observations of clinicians all over the world and to better understanding of basic physiologic principles, such protracted invalidism is of comparatively rare occurrence at the present time.

In 1925, at the Mayo Clinic, dietary measures were supplemented by the administration of ammonium chloride and merbaphen (novasurol¹). Later, ammonium nitrate in combination with mersalyl (salyrgan) was the treatment of choice.² Since 1933, potassium nitrate has been preferred as the diuretic salt and, as is well known, it can be combined advantageously with mercurial diuretics.³ Experience with a case of nephrotic edema in which the disease was particularly refractory to treatment, in 1937, revealed to us the definite advantage of combining injections of solutions of acacia with the aforementioned treatment.⁴ Further experience with acacia has made it clear that many additional diuretic measures, such as the use of organic mercurial compounds, may well be dispensed with in the majority of instances.

A review⁵ of the adult patients who had nephrotic edema and who received treatment in the hospital in the last two years reveals that in fourteen instances acacia was not used. Such cases generally were of a mild character. Some patients ultimately became free from edema with nothing more than the use of a low salt diet. In all of the more extensive and resistant cases of nephrotic edema, acacia was used in treatment.

From the Division of Medicine, the Mayo Clinic.

1. Keith, N. M.; Barrier, C. W., and Whelan, Mary: The Diuretic Action of Ammonium Chloride and Novasurol in Cases of Nephritis with Edema. *J. A. M. A.* 85:799-806 (Sept. 12) 1925.

2. Keith, N. M.; Whelan, Mary, and Bannick, E. G.: The Action and Excretion of Nitrates. *Arch. Int. Med.* 46:797-832 (Nov.) 1930.

3. Keith, N. M., and Binger, M. W.: Diuretic Action of Potassium Salts. *J. A. M. A.* 105:1584-1591 (Nov. 16) 1935.

4. Goudsmit, Arnoldus, Jr.: Nephrotic Type of Edema Unusually Resistant to Treatment: Report of Case, *Proc. Staff Meet., Mayo Clin.* 12:401-405 (June 30) 1937.

5. Goudsmit, Arnoldus, Jr., and Binger, M. W.: Unpublished data.

Thirty-six (90 per cent) of forty patients, on their first admission to the hospital, after treatment which included injections of solutions of acacia, were relieved of edema. Of the sixty-four patients admitted to the hospital because of nephrotic edema, fifty-five were readily relieved by treatment with or without acacia. In nine cases, measures to relieve edema were not successful before the dismissal from the hospital.

It has been noted that, in all cases in which the treatment which is to be described in this paper was not successful in mobilizing the edema, such severe anorexia and vomiting were present that neither food nor diuretic salts could be taken in adequate amounts. Except when these serious complications occurred, we have obtained satisfactory diuresis in all of the sixty-four consecutive cases. We feel confident that, with very few exceptions, the regimen which is to be outlined will prove satisfactory for adult patients who have nephrotic edema.

In order that the treatment may lead to the best possible results, it appears essential that it should be carried out in the hospital because close supervision is necessary and because it is fundamental that the amount of salt contained in the diet should be as small as possible. Also, possible complications can be handled more satisfactorily in the hospital than in the home. The patient should remain in bed until recovery is well under way. He should be weighed, preferably every morning before breakfast, and all urine should be saved and measured every twenty-four hours, in order to follow closely the effect of the therapy.

The so-called salt free diet should be prescribed. This requires (1) the use of bread and butter processed without the addition of salt, (2) the selection of food-stuffs that contain minimal amounts of sodium chloride (limitation of the amount of milk given is very important) and (3) omission of salt for flavoring purposes in cooking. In order to avoid serving too tasteless a diet, the use of moderate amounts of condiment is desirable. If patients experience difficulty in ingesting such a diet, we allow them to use a shaker filled with potassium chloride. In addition to being salt free, the diet should contain more protein than has been customarily prescribed in the average case of chronic nephritis without edema. Usually from 70 to 100 Gm. of protein each day is given. The caloric intake should be adequate to maintain the weight of the patient, and, since a considerable number of these patients are fundamentally in a condition of malnutrition, some extra calories may be allowed during the stay in the hospital. Lately we have provided extra vitamins for those patients who have been ill for a long time before hospitalization. The intake of fluid by mouth, including the volume of tea, coffee and soup, should be limited to approximately 800 cc. in twenty-four hours.

Diuretic salts are usually prescribed in the form of potassium nitrate. Most patients receive 9 Gm. daily, divided into three doses. The pills of potassium nitrate

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SATURDAY, JUNE 29, 1940

THE PLATFORM OF THE AMERICAN MEDICAL ASSOCIATION

The American Medical Association advocates:

1. The establishment of an agency of the federal government under which shall be coordinated and administered all medical and health functions of the federal government exclusive of those of the Army and Navy.
2. The allotment of such funds as the Congress may make available to any state in actual need, for the prevention of disease, the promotion of health and the care of the sick on proof of such need.
3. The principle that the care of the public health and the provision of medical service to the sick is primarily a local responsibility.
4. The development of a mechanism for meeting the needs of expansion of preventive medical services with local determination of needs and local control of administration.
5. The extension of medical care for the indigent and the medically indigent with local determination of needs and local control of administration.
6. In the extension of medical services to all the people, the utmost utilization of qualified medical and hospital facilities already established.
7. The continued development of the private practice of medicine, subject to such changes as may be necessary to maintain the quality of medical services and to increase their availability.
8. Expansion of public health and medical services consistent with the American system of democracy.

THE IMPORTANCE OF CLINICAL INVESTIGATION

In most universities and research institutes major emphasis has been placed in recent years on basic research, which is pursued without thought of immediate practical value to man or to society. Frequently research in the fundamental medical sciences of physiology, anatomy, chemistry, biology and pathology has been enveloped in an atmosphere of profound obscurity. The material studied and the reports are expressed in terminology or in intricate mathematical formulas which make comprehension difficult. So much emphasis has been placed, in fact, on the quality of research in the laboratory as compared with research in the clinic and at the bedside that many a clinician has hesitated to express his opinions or his conclusions in relationship

to the diagnosis and treatment of disease without having first devoted some thought and consideration to research on frogs, rats, dogs, rabbits or guinea-pigs. The results obtained in studies made on animals in the laboratory are, of course, of utmost importance as a basis for the ultimate study, which must always be made with man.

In a recent address, Abraham Flexner¹ emphasized the usefulness of useless knowledge. The value of basic research as discipline certainly cannot be denied. Nevertheless, the research carefully planned and actually performed with patients in a well equipped hospital frequently offers immediate promise of benefit to mankind far exceeding such abstruse performances as are occasionally reported from the laboratories of the fundamental sciences. In his address, Mr. Flexner proclaimed that the spirit and policies which determine the course of research should be the fearless and unhampered search for truth, the unlimited cultivation of the natural curiosity of human beings within the field of science. These very words are in themselves an inspiration to the physician, who takes care of patients in the hospital and in the home, to cultivate to the utmost those fields of clinical research which are available to him.

Most laboratory scientists appreciate the easier methods of their task resulting from the ability to work with test tubes and animals. This is perhaps one reason why laboratory research is generally used by preference for fundamental investigations. Once the ground has been broken in this way, the problem can often be carried to the clinic with a much better chance of success and safety for the patient. Moreover, the methods of the laboratory must prevail in the clinic as well if clinical research is to be useful; even clinical research is most useful when it is carried on by exact methods and when the results are judged by a critical mind that rebels against superficial observations, unsound reasoning and uncritical deductions. Indeed, the clinical investigator often finds that the first approach to the problem which arises in the clinic must be made through the laboratory.

Thus there has been suggested as a typical example the work of Loeb in Addison's disease. He had been working for many years on the acid-base equivalent and the electrolyte structure of the blood. In taking care of patients with Addison's disease in the ward, the clinical condition in Addisonian crises suggested to him the possibility of potassium poisoning. This led to investigation of the electrolyte pattern of these cases, which permitted the discovery of the altered potassium-sodium ratio with lowered sodium and increased potassium. This observation, in turn, suggested the use of sodium chloride in the treatment of Addisonian crises. Both the experiments in the laboratory and those in

1. Flexner, Abraham: The Usefulness of Useless Knowledge, *The Field and the Work of the Squibb Institute for Medical Research* 1:19 (Nov.) 1938.

the clinic thus led to constructive progress in the treatment of Addison's disease and to new fields of experimentation in both the laboratory and the clinic in relationship to many other problems. From an idea gained in the clinic regarding disease, the modern investigator goes back to the organic chemist, suggesting the type of synthesis needed. The products which are developed are then tested experimentally in mice, dogs and other animals so that the investigator gains a thorough knowledge of the therapeutic and pharmacologic effects. Then it is possible to take the product back to the patient, where studies are made under controlled conditions of clinical investigation.

There would seem to be need for closer approximation between the fundamental sciences and the clinic; far too often fundamental workers in chemistry, bacteriology and physiology seem to be disinterested in the application of their problems to the clinic. In fact, far too frequently they use in their discussions terms which even the scientifically trained clinician finds it difficult to understand. As Eugene F. Du Bois² has said, "Any young neophyte can introduce a new drug. It requires a man of large experience and considerable reputation to destroy an old one." The clinical investigator must be a good diagnostician; a keen, impartial observer, capable of utilizing the relatively new methods of alternate cases and blindfold tests, and of enlisting the support of the pharmacologic laboratories.

In an address, also made at the dedication of the Squibb Institute for Medical Research, Dr. Russell M. Wilder³ forcibly called attention to the need for more laboratories in which problems involving abnormal human physiology can be attacked by clinicians who have received training in investigation equivalent to that usually given to the physiologist or biochemist. He said:

Medical science, in recent decades, has developed principally in laboratories of animal physiology, and in consequence what we have learned about dogs and rats exceeds what we know about ourselves. This is partly explained by the greater ease of experimentation on lower animals, but also responsible in part is the disproportionately larger provision made for research with animals. It is only in very recent years that American universities have admitted clinicians to their faculties, and in only a few universities where this has occurred is provision made for as rigid investigation of clinical material as the physiologist conducts with dogs.

Wilder emphasized that we must learn more from man than we do learn, because much of the information obtained from other animals fails to apply to man. Striking variation is found, for example, between human diabetes and the diabetes of dogs after pancreatectomy. A difference exists in the distribution of potassium between the cells and the plasma of the blood;

explaining it may be the unlike response to treatment of patients with Addison's disease and adrenalectomized dogs. The dissimilarity of distribution of cholinergic and adrenergic nerve fibers accounts for the fact that sweating occurs in man and not in the dog and may underly species differences in susceptibility to toxins and drugs.

Research on man, however, demands even greater refinement of method, more critical judgment and more rigid control than does work with dogs or other animals. Wilder not only pleaded for scientific training of clinical investigators; he also urged that laboratories for clinical research be located when possible in hospitals which are integral parts of universities. In such environment the clinical investigator obtains guidance from laboratory workers on the one hand and criticism from clinicians on the other. He requires both—the former to hold him to the discipline of science, the latter to maintain the reliability of his clinical interpretations.

No doubt, a number of factors have been significant in developing the current relationship between laboratory and clinical research. An important influence is undoubtedly the great increase in the number of non-medical investigators: doctors of philosophy in the basic sciences who are primarily responsible for teaching in the preclinical branches. Indeed, there are many institutions in which the teachers concerned with the study of the effects of drugs in health and in disease are doctors of philosophy and pharmacology who have in their own training been without any considerable contact with actual cases of disease. The recent introduction of special emphasis on statistical studies has decreased largely the influence of many a competent scientist who emerged from the university in a previous generation and who has not been able to keep abreast of this current trend. Such men, even as heads of departments, may develop a sense of inferiority in conversing with younger men who have been especially trained in the newer technics. Nevertheless, the great field for research in medicine is today still in the clinical branches. Unfortunately, much of the material which is published as part of the contents of many medical journals represents work done in a superficial manner without proper standards, and it is likely to be subject to harsh criticism from leaders in the fundamental sciences. All these observations lead, therefore, to the eventual conclusions that proper integration of the fundamental sciences in clinical medicine and, at the same time, independent investigation in the two fields represent the primary needs of the day. On the physician rests the obligation to establish through clinical investigation all the possible practical results based on investigation in the laboratory as soon as possible in order to benefit the sick. The physician cannot always afford to wait until the fundamental discoveries have been established beyond the shadow of doubt in the

2. Du Bois, Eugene F.: Elimination of Worthless Drugs, *Tr. A. Am. Physicians* 54: 1-5, 1939.

3. Wilder, Russell M.: Industrial Laboratories and Clinical Research. *The Field and the Work of the Squibb Institute for Medical Research* 1: 15 (Nov.) 1938.

laboratory. Indeed, this application of laboratory science to the bedside represents the highest type of clinical research and one which may inspire every practicing physician.

TRAINING OF PHYSICAL THERAPY TECHNICIANS

During the past fifteen years there has been a belated but gratifying growth in appreciation of the varied beneficial influences of physical therapy. Strange that one of the oldest therapeutic fields known to mankind should have waited so long to be recognized with other major factors of the medical armamentarium. As far as extension of physical therapy to the public is concerned, however, for rich and poor alike the surface has been hardly more than scratched.

In his recent address before the thirty-sixth Annual Congress on Medical Education and Licensure in Chicago, Gregg¹ remarked:

A curious phenomenon in American medicine is the deft elimination of much reference to physical therapy. Almost as those who keep their children ignorant of the facts of life, we appear to protect the American medical student from the knowledge of physical therapy, mindful, I suppose, of the abuses imputed to osteopaths and chiropractors. . . . But the effects of heat on capillary circulation, lymph flow and inflammation, and the indications and effects of massage and passive movement or of irradiation, can certainly be learned and taught as physiology without any trace of charlatanism. The current unabashed ignorance of physical therapy in this country leaves it as an excellent opportunity for development in American medicine.

These remarks are a deserved exposé of a situation which lamentably needs correction. The culps owe their origin largely, if not entirely, to the inertia and apathy with which the medical profession has regarded physical therapy. Fortunately this situation is being slowly but definitely bettered by virtue of the educational campaign now under way. Physical therapy is included officially in the curriculums of some of the leading medical schools. It has received attention and some emphasis in many others. The field constitutes a definite specialty, however, and one of the difficulties as well as one of the opportunities is the necessity of training men in this field.

In many medical centers and in many smaller communities, physicians are gradually becoming aware of the importance of applying the various measures included under physical therapy to a host of conditions. Intellectual appreciation of the therapeutic potential in this field and actual practice of its precepts are, however, two different matters. Even if the general practitioner should be equipped to carry out skilfully the various measures of physical therapy, he could himself reach only a negligible fraction of those patients, both medical and surgical, who desperately need such care. This need

can be met in a large way only by physical therapy technicians trained to use with skill and restraint those complicated measures which constitute the essential basis of physical therapy, namely heat, effleurage, massage, postural exercises, passive motion and active exercise. Fortunately the training of persons educationally qualified to enter this field, such as registered nurses or graduates in physical education, can be achieved in a relatively short time. Such qualifications do not supply that experience and skill which only time will yield, but at least they afford a direct and immediate avenue of approach to the application of physical measures. Indeed, the opportunity today for agreeable and remunerative effort, of great sociologic value, is such that young persons interested in activities within the field of medicine could well consider this vocation. Educational opportunities for training are, as indicated in a recent issue of *THE JOURNAL*,² as yet limited; but they are in process of being expanded and as the demand increases further expansion can be expected.

Direction of the activities of physical therapy technicians by qualified medical supervision is primarily important. Such qualified direction is available in only a few medical centers. Until this requirement has been filled, the medical profession and the public will be fortunate if the quota of technicians needed for a host of patients can be supplied.

The Council on Physical Therapy has often pointed out that the basis of the principles and practice of physical therapy consists in the application of heat, massage and exercise. It is still necessary to disabuse the medical mind from the thought that the field is constituted by physical apparatus. Except for refinement of application, relatively little that is new has been added, in principle, to physical therapy since the days of Hippocrates apart from the influence of the x-rays and radium. These agencies are by definition restricted to elaborate physical equipment directed by medical minds trained in these lines of effort.

Orthopedists have long since learned the value of physical therapy. Neurologists, following the lead of Weir Mitchell, now make use of this measure in a large way. Internists as a group and practitioners in general have small interest in the field and perhaps even less familiarity with it. Thousands of cases of fracture in or near joints and a vastly greater number of sufferers from arthritis are daily experiencing sharply limited motion and permanent ankylosis because of well intentioned ignorance and because of a dearth of personnel qualified to bring critically to bear even the simplest physical therapeutic measures. Precisely here many more persons adequately trained in the practice of physical therapy are needed. In respect to the more subtle practices in difficult cases the number of experienced persons is hopelessly inadequate.

1. Gregg, Alan: Addenda to the Agenda for the Decade 1940-1950, *J. A. M. A.* 114:1139 (March 30) 1940.

2. Schools for Physical Therapy Technicians, *J. A. M. A.* 114:1262 (March 30) 1940.

Current Comment

FOURTH OF JULY

Already the American Medical Association has circularized hospitals, dispensaries and other institutions in the United States with a view to compiling within the near future a record of accidents and mortality resulting from injuries on the Fourth of July due to ignorant or too enthusiastic employment of fireworks. Many states have already adopted effective antifireworks legislation; but last year at least 5,560 people were injured, and at least thirteen died as the result of such celebrations. The majority of cases were mutilations received by boys or men who used home-made explosives, and burns of little girls whose dresses were set on fire by sparklers and fire crackers. In 1938 Pennsylvania led all other states, with six deaths from fireworks. In 1939 the records indicated that there was not one death in that state. It is about time that every state in the Union adopted effective antifireworks legislation. The contrast, in recent years, between Pennsylvania, Utah and West Virginia, which adopted such legislation, with Indiana and Maryland, which postponed legislation, should be sufficient warning to every state that the time has come to cease postponing such action.

GOVERNOR LEHMAN ADDRESSES THE MEDICAL PROFESSION

At the opening general meeting of the American Medical Association convention in New York, Governor Herbert H. Lehman made an address which brought the assemblage to its feet in applause. The moment was fraught with anxiety because of the report on the status of the war in Europe. A great orchestra of physicians had inspired the assemblage with a beautiful performance. The invocation was sympathetic and at the same time thrilling. The Governor of New York recognized the achievements of scientific medicine on behalf of mankind in the twenty-three years since the Association had previously met in New York City:

"The continued progress of any people and of civilization in general," he said, "depends upon the well-being of individual members of society" and, he continued, "there can be no doubt that the availability and utilization of adequate medical facilities and the attainment of high standards of medical care throughout the nation has become an important public consideration. Only by constant, intensive and coordinated action by the medical profession as a whole can these great needs be met. The hospital, the practicing physician and the research laboratory," he said, "are in my opinion the most important instruments in the future improvement of the well-being of the people of this nation." Bitterly he attacked the totalitarian aggression, which now threatens not only life and property but all concepts of morality, religion and thought. "Such an attack," he said, "would destroy freedom, and without freedom science cannot exist." Continuing, he said "But in those countries where freedom has disappeared science too has been beaten to earth. There science is being used not to prove truths but to distort them. It is being used not to advance human thought but to shackle it. It is being used not to make men free but to enslave them. It is being used to tear down, to maim, to kill, not to save and build. . . . Yours is a great profession. It is great in part because it is free and untrammelled. It deals not only with the bodies but with the souls of men. The spiritual

influence which you wield is as important as the purely medical. Medicine and surgery here and abroad have achieved epoch making gains on all fronts only because those who are dedicated to them could conduct and carry on their work with perfect freedom of thought and expression. . . . Science cannot possibly live and progress save in an atmosphere of complete intellectual honesty. Its very lifeblood springs from individual initiative. Its inspiration is high morality and spirituality. Science becomes impotent where freedom is lost."

The address ended with the Governor's hope that our government and our people would give all possible material help in the defense of freedom and the democratic cause. It was an address replete with re-expression of many of the ideals for which medicine has been doing its utmost throughout the years. When statesmen and leaders of our people realize that freedom of the medical profession to study and to advance are basic to every freedom of the nation, the battle for medicine will begin to be won.

DR. GEORGE WALTER MCCOY RETIRES

Dr. George Walter McCoy, for forty years on active duty in the United States Public Health Service, will retire on June 30. His contributions to the investigation of tropical diseases, his enlightened administration of the Hygienic Laboratory from 1915 through 1937 and his services to the Council on Pharmacy and Chemistry of the American Medical Association from 1915 onward are exemplifications of the vast public service which he has rendered in the field of medicine. For some twenty years also he served the advancement of medical science notably by his contribution as a powerful opponent of measures introduced into Congress by those who endeavored to inhibit scientific research through preventing the use of animals. Dr. McCoy is now director of the Department of Preventive Medicine and Public Health at the Louisiana State University School of Medicine in New Orleans. He will continue his membership on the Council. Thus he now serves still further by his ability to inspire young men with the possibilities in the field of preventive medicine. THE JOURNAL wishes for Dr. McCoy many more years of healthful life and distinguished service.

THE DECISION TO OPERATE

Dr. S. S. Goldwater, Commissioner of Hospitals of the City of New York, reports that the surgical services in one of the institutions under his supervision have adopted a rule that "all operative cases of election, excluding emergency cases, must have a record of examination by two members of the visiting staff recommending the operation." Such a rule unquestionably provides an additional safeguard for patients about to undergo elective surgery, gives added protection to the public and also adds legal and moral support to the judgment of the attending physician. The patient, the physician and the institution would all seem to be benefited by this precautionary measure. Public hospitals especially might well consider the advisability of adopting a similar rule.

MEDICAL PREPAREDNESS

In this section of The Journal each week will appear official notices by the Committee on Medical Preparedness of the American Medical Association, announcements by the Surgeon Generals of the Army, Navy and Public Health Service, and other governmental agencies dealing with medical preparedness, and such other information and announcements as will be useful to the medical profession.

COMMITTEE ON MEDICAL PREPAREDNESS

Dr. Irvin Abell, Louisville, Ky., Chairman	Ex Officio:
Dr. Charles A. Dukes, Oakland, Calif.	Dr. Arthur W. Booth, Elmira, N. Y., Chairman Board of Trustees
Dr. Roy W. Fauts, Omaha	Dr. Austin A. Hayden, Chicago, Sec- retary Board of Trustees
Dr. Stanley H. Osborn, Hartford, Conn.	Dr. Nathan B. Van Etten, New York, President American Medical As- sociation
Dr. John H. O'Shea, Spokane, Wash.	Dr. Olin West, Chicago, Secretary American Medical Association
Dr. James E. Paullin, Atlanta, Ga.	Dr. Morris Fishbein, Chicago, Editor Journal of the American Medical Association
Dr. Walter G. Phippen, Salem, Mass.	
Dr. Fred W. Rankin, Lexington, Ky.	
Dr. Harvey B. Stone, Baltimore	
Dr. Samuel E. Thompson, Kerryville, Texas	

AN APPEAL FOR SERVICE

In response to a request from the Surgeon Generals of the Army, Navy and Public Health Service the American Medical Association has set its machinery in motion to secure information relative to the availability and qualifications of professional personnel for service in the federal preparedness program. Since mental and physical health is of fundamental importance in the prosecution of such a program, the doctor, with a knowledge of the measures essential to the conservation of health, the prevention and cure of disease, is in a position to make a signal contribution to its success. The medical profession, actuated by a high sense of patriotism and civic responsibility, has freely proffered its help in every emergency with which the government has been confronted. The American Medical Association has always unflinchingly placed its facilities at the disposal of the constituted authorities. During the first world war 32,000 of its members voluntarily served with the armed forces and many more thousands participated in various helpful capacities. Soon a letter and a schedule will reach you on which you may supply information necessary to enable our nation, in an emergency, to call on physicians for the services they are best equipped to render. The reply of the profession to this call for help will by its generosity and spontaneity demonstrate that medical men continue to be not unmindful of the obligations which intelligent citizenship entails and as well not only their willingness but their determination to fulfil them.

IRVIN ABELL, M.D.

Chairman Committee on Medical Preparedness.

ADDITIONAL PHYSICIANS REQUIRED FOR UNITED STATES NAVY MEDICAL CORPS

In an effort to bring up the strength of the Medical Corps of the Navy to that authorized by the Department of the Navy, an examination for entrance into the Medical Corps will be held on August 19. This examination will be held at the U. S. Naval Medical Center, Washington, D. C., and at the following naval hospitals:

Chelsea, Mass.; Brooklyn; Portsmouth, Va.; Pensacola, Fla.; San Diego, Calif.; Newport, R. I.; Philadelphia; Charleston, S. C.; Great Lakes, Ill.; Mare Island, Calif.; Puget Sound, Bremerton, Wash.

Graduates of class A medical schools who have had an internship in a civilian hospital and who are physically and professionally qualified may be commissioned in the permanent Medical Corps of the Navy as Assistant Surgeons with the rank of lieutenant (junior grade). Applicants must be less than 32 years of age at the time they receive their commissions, citizens of the United States, physically qualified for appointment as officers in the Medical Corps and must demonstrate their professional qualifications by competitive written, oral and practical examinations. The professional examination will embrace the subjects of (1) General Medicine, (2) General Surgery, (3) Obstetrics and Gynecology, and (4) Preventive Medicine and Medical Jurisprudence.

The pay and allowances for Assistant Surgeons with the rank of lieutenant (junior grade) in the Medical Corps of the Navy is \$2,699 a year if the officer has no dependents and \$3,158 a year if he has dependents.

Additional information regarding requirements may be obtained by addressing a letter to the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. Applications must be completed and received in the Bureau of Medicine and Surgery prior to August 1 in order that authorization may reach the applicant in sufficient time for him to appear for examination on August 19.

BRITISH EMBASSY REGISTERING AMERICAN PHYSICIANS FOR SERVICE WITH GREAT BRITAIN

The British Embassy is registering the names of American physicians who volunteer for service in the United Kingdom in the treatment of war casualties so as to have available a list of men who may be called on if the need arises. The statement is made that these men are required mainly for the treatment of civilian casualties and that there is no question of enrolling these men in the medical services of the war forces.

ARMY MEDICAL CORPS NEEDS ADDI- TIONAL MEDICAL PERSONNEL

The office of the Surgeon General of the United States Army Medical Corps points out there are now authorized for the army of 280,000 an additional 1,283 Medical Reserve officers. Of this number only 363 have been procured, leaving 920 still required. Approximately 600 medical officers will be needed for the additional 95,000 men. It is stated that the War Department will authorize active duty for lieutenants to age 35 and captains to age 40. The duty will be for one year, to be renewed as required. Physicians who are anxious to obtain some military experience, and particularly young physicians who are seeking at this time an outlet for their services, will find here an opportunity to accept service for one year or for more if they desire it to obtain experience, and an income, and at the same time fulfil a patriotic duty.

ORGANIZATION SECTION

PROCEEDINGS OF THE NEW YORK SESSION

MINUTES OF THE NINETY-FIRST ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION, HELD IN NEW YORK, JUNE 10-14, 1940

HOUSE OF DELEGATES

Second Meeting—Tuesday Morning, June 11

The House of Delegates was called to order at 9:40 a. m. by the Speaker, Dr. H. H. Shoulders.

Report of Reference Committee on Credentials

Dr. J. Newton Hunsberger, Chairman, reported that 168 delegates had registered and been seated.

Roll Call

On motion of Dr. Charles W. Roberts, Georgia, seconded by Dr. J. N. Baker, Alabama, and carried, the House dispensed with the roll call.

Presentation of Minutes

Dr. H. B. Everett, Tennessee, moved that the House dispense with the reading of the minutes. The motion was seconded by Dr. John Z. Brown, Utah, and carried.

Report of Reference Committee on Medical Education

Dr. Harvey B. Stone, Chairman, presented the following report, which, on motions duly seconded and carried, was adopted section by section and as a whole:

1. Resolution on Approval of the American Foundation for Tropical Medicine, Inc.; This resolution, which was introduced by Dr. Peter Irving, New York, was not supported at the hearings of your reference committee by any one sponsoring it or having detailed knowledge of the American Foundation for Tropical Medicine, Inc. In the absence of such information, your reference committee feels unable to give its endorsement to the resolution and suggests that it be laid on the table for future action.

2. Resolutions on Specialists in Hospitals: These resolutions, which were introduced by Dr. Thomas A. McGoldrick, New York, were so phrased that your reference committee was unable to get a clear idea of their intent. No sponsor for them appeared before the committee. Your reference committee, therefore, recommends that another opportunity be offered for the sponsors of these resolutions to appear before it in support of them.

3. Report and Supplementary Report of Council on Medical Education and Hospitals: (a) Your reference committee wishes to note a clerical error on page 176, line 12, of the Handbook in which 2.1 per cent appears in the printed copy and which, it is informed, should read 97.9 per cent. A further clerical error is noted on page 180, line 10, in which the word "extramural" should be inserted following "Scottish" and preceding "medical," so that the corrected portion of the text will read "the quality of instruction in the Scottish extramural medical schools." With these textual corrections, your reference committee recommends to the House of Delegates the approval of the report of the Council on Medical Education and Hospitals.

(b) Inasmuch as paragraph two of the report of the Council on Medical Education and Hospitals contains an implication of suggested action by the House of Delegates, your reference

committee has suggested to that council that it submit to the House of Delegates a resolution embodying its ideas in this connection.

Respectfully submitted.

HARVEY B. STONE, Chairman.
ELBRIDGE J. BEST.
L. A. BUIE.
C. E. KIELY.
GEORGE BLUMER.

Report of Reference Committee on Hygiene and Public Health

Dr. Edwin S. Hamilton, Chairman, presented the following report:

Your reference committee held a hearing last night at which the proponents of resolutions referred to it were not present. Your reference committee is unable to take any definite action until the proponents of the resolutions come before it to explain the urgency of the resolutions, and it respectfully requests that the proponents of the resolutions appear at a meeting of your reference committee this afternoon immediately after the Executive Session. Unless they do come, your reference committee will have to report adversely on their resolutions.

Report of Reference Committee on Amendments to Constitution and By-Laws

Dr. David D. Scannell, Chairman, presented the following report:

1. Proposed Amendment to Article 8, Section 1, of the Constitution: Your Reference Committee on Amendments to the Constitution and By-Laws has read and approved the amendment submitted by the Judicial Council at the annual session held in St. Louis in 1939, which reads as follows:

Resolved, That the Constitution of the Association be amended by the insertion of the words "holding the title Doctor of Medicine or Bachelor of Medicine" between the words "associations" and "are" in article 8, section 1, third line.

This proposed amendment, having been submitted in 1939, is, under the provisions of the Constitution, before the House of Delegates for action at this New York session.

2. Proposed Amendment to By-Laws, Chapter VIII, Section 1: Your reference committee has heard Dr. James E. Paullin, Section on Practice of Medicine, with reference to an amendment to chapter VIII, section 1, of the By-Laws, dealing with the election of members of the Council on Medical Education and Hospitals and unanimously approves of this proposed amendment.

3. Report of Judicial Council: Your reference committee has read and approved the report of the Judicial Council with one exception. Under the heading of "Rearrangement and Rewording of the Principles of Medical Ethics" your reference committee dissents from the conclusion of the Judicial Council in this matter and recommends that the Speaker of this House appoint a committee of five to report its recommendations to the 1941 session of the House of Delegates of the American Medical Association in accordance with the resolutions introduced by the California delegation in 1939, reading as follows:

Resolved, That the Speaker of this House of Delegates appoint a committee of five Fellows of the American Medical Association to study the Principles of Medical Ethics and the form of the code of ethics of the

legal profession, having in mind the rearrangement of our Principles of Medical Ethics for continuity, the rewording for clarity, the addition of a commentary following each principle to illustrate the intent and the quoting of relating decisions of the Judicial Council; and be it further

Resolved, That this committee be directed to report its recommendations to the 1949 session of the House of Delegates of the American Medical Association.

Respectfully submitted,

DAVID D. SCANNELL, Chairman.
WILLIAM WESTON.
BARNEY J. HEIN.
CHARLES A. DUKES.
A. A. WALKER.

On motions of Dr. Scannell, duly seconded and carried, the House approved the first two sections of the report of the reference committee.

Dr. Scannell moved that the third section of the report of the reference committee, dealing with the report of the Judicial Council, be adopted, and the motion was seconded by Dr. George W. Kosmak, New York. After discussion, it was moved by Dr. A. T. McCormack, Kentucky, seconded by Dr. L. G. Christian, Michigan, and carried, that this third section of the report of the reference committee be tabled.

Dr. A. T. McCormack, Kentucky, then moved that the recommendation in the report of the Judicial Council referring to this matter be adopted, and the motion was seconded by Dr. Harvey F. Garrison, Mississippi, and carried.

The report of the reference committee, with the exception of the third section which had been tabled, was then adopted as a whole, on motion of Dr. Scannell, seconded by Dr. A. T. McCormack, Kentucky, and carried.

Article 8, section 1, of the Constitution was amended in accordance with the report of the reference committee, on motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. Arthur J. Hedell, Section on Ophthalmology, and carried.

On motion of Dr. Scannell, seconded by Dr. J. E. Paulin, Section on Practice of Medicine, and carried, chapter VIII, section 1, of the By-Laws was amended in accordance with the report of the reference committee.

Report of Reference Committee on Miscellaneous Business

Dr. Charles G. Strickland, Chairman, presented the following report, which was adopted section by section and as a whole on motions of Dr. Strickland, duly seconded and carried:

1. Resolutions on Military Service by Women Physicians: There was on Monday presented to this House of Delegates communications from the American Medical Women's Association and the Women's Medical Association of New York City, both containing a resolution of the same tenor, to wit, that the American Medical Association approach the War Department or proper authorities in order to secure military recognition and commissions for women physicians and surgeons in any defense plans.

Your reference committee takes pleasure in acknowledging the justice of the position taken in these resolutions and commends the public spirit which prompted them. It feels certain, however, that the War Department will utilize every available resource in its defense plans without regard to sex, color or creed. The Chairman of our Board of Trustees yesterday recommended the appointment of a committee to act as a coordinating committee on national defense activities. Your reference committee recommends that the communications and their contained resolutions be referred to that committee when formed for its information, consideration and action.

2. Resolutions on Care of Needy Physicians: Your reference committee feels that these resolutions, which had been presented by Dr. Charles A. Dukes, California, on instruction of the house of delegates of the California Medical Association, as written, have some objectionable features as (1) A serious study of the scope suggested will be time consuming. Unless other important work is neglected, it cannot be completed in time to report with recommendations to the 1941 House of Delegates. (2) The resolutions imply recognition of national responsibility, whereas your reference committee prefer

principle that each state care for its own. (3) Resolutions of this type may eventually lead to unwarranted and perhaps embarrassing expenditure.

Your reference committee recommends that the resolutions be not approved.

3. Resolution on Blood Typing for Blood Transfusion: Your reference committee recognizes the value of blood transfusion and also the importance of having donors available for emergencies. It, however, believes that both doctors and the public are already well aware of the importance of the life saving procedure and that adequate measures have, in most communities, already been taken. It is unsympathetic with the idea expressed in the resolution that blood typing and classification "may be linked with the present day project of blood testing for syphilis." It regards this resolution, as introduced by Dr. T. K. Gruber, Michigan, in behalf of the Michigan State Medical Society, as unnecessary at the present time and so recommends its disapproval.

4. Resolutions on Limiting Type and Extent of Services Offered by Laboratories of State Boards of Health: In considering these resolutions, introduced by Dr. L. W. Larson, Section on Pathology and Physiology, your reference committee recognizes the encroachments on private practice as detailed in these resolutions and sympathizes with the attempts to correct or limit them as far as such attempts do not unwittingly interfere with the control of communicable disease. As your reference committee sees it, these resolutions contemplate no further action by the American Medical Association than the recommendation to all state societies as embodied and expressed in them. Your reference committee recommends approval of these resolutions.

5. Report of Board of Trustees dealing with the Report of the Bureau of Medical Economics on Fee Schedules: Your reference committee believes that this report fairly well summarizes a subject on which it is difficult, if not impossible, to come to common accord. Its feeling is the fewer the fee schedules, the better for all concerned. It calls attention to the fact that the third paragraph of the report, made up of a single sentence, is rather involved and must be read several times for clear understanding. Your reference committee recommends approval of the report.

6. Resolution on Doctor's Day: The hearing on this resolution brought out rather sharp differences of opinion between those gentlemen who were interested enough to appear before your reference committee. Senator Bilbo's resolution, as read yesterday, has passed the Senate but has not yet been considered by the House. The difference of opinion occasioned by the appreciatory resolution introduced by Dr. Harvey F. Garrison, Mississippi, was due to the fear that Senator Bilbo had not been specific enough in limiting his appreciation to doctors of medicine and that some of the evils might take over the day as their own. What the irregulars may do no one can predict, but Senator Bilbo, in his resolution and all through the six and one half page speech that he gave, made it perfectly clear that he sought to honor doctors of medicine only and particularly the family doctor.

Your reference committee recognizes the fact that your family doctor does not particularly crave nor desire this type of laudation. Senator Bilbo's action, however, was apparently spontaneous and not instigated by the Mississippi State Medical Association or by any other medical society. It merely remains for the House of Delegates to say "Thank you" for what was evidently meant as a gracious and friendly gesture or to pass over the action unheeded. Remembering the fact that we need to retain all the friends we have in Washington, your reference committee recommends for your approval the resolution offered by Dr. Garrison.

Respectfully submitted,

CHARLES G. STRICKLAND, Chairman.
HOWARD L. SNYDER.
HENRY C. MACATEL.
FRANK E. SONDER.
HERBERT L. BRYANS.

Report of Committee on Legislative Activities

Dr. E. H. Cary, Chairman, presented the following report, which was referred to the Reference Committee on Legislation and Public Relations:

Mr. Speaker and Members of the House of Delegates:

The Committee on Legislative Activities reports that many months before the American Medical Association session in St. Louis, May 15-19, 1939, it was called to Chicago and decided on the best method of meeting the issues which would arise regarding legislation affecting the medical profession.

A plan was drawn and, with the cooperation of the members of the Board of Trustees, a number of gentlemen were selected to handle some phase of the program formulated. To each of the gentlemen was assigned a subject and he was asked to submit what he would present to a congressional committee. The response was immediate and the chairman of your committee had in hand their views when the American Medical Association met in St. Louis. At the St. Louis session a special committee was appointed by the Speaker to deal with the Wagner bill and that committee made a report which was unanimously accepted by the House of Delegates.

Following the St. Louis session of the American Medical Association, on May 25 the following gentlemen, who had been formerly asked to cooperate with our committee, were requested to come to Washington, where a full discussion was had: Drs. Frederic E. Sondern, Wingate M. Johnson, Robert L. Benson, James Milton Robb, Walter Edward Vest, Charles Gordon Heyd, R. L. Sensenich, Walter F. Donaldson, Haven Emerson and Holman Taylor. This group was joined by Drs. Olin West, Morris Fishbein, William C. Woodward, R. G. Leland, W. D. Cutter, F. S. Crockett and Edward H. Cary. We were able to agree on just what would be presented to the subcommittee of the Senate Committee on Education and Labor.

Your committee calls attention to the fact that the presentation of this material to the subcommittee of the committee of the Senate undoubtedly developed a favorable impression in Washington. Regardless of how the subcommittee utilized the material in its report there was a definite reaction through congressional halls.

Your committee has not been as active in opposing the new hospitals built for veterans, for the demands have been but a part of a general program of expansion. Regardless of whether many of them seem necessary to us, their geographic locations seem to be in line with a policy which has prevailed for the past few years.

Your committee would like to call to the attention of the medical profession that it has always been said that in a few years these hospitals would be used for domiciliary purposes. Your committee would like to suggest to the profession that, since we have not definitely destroyed the propaganda or the sentiment held in some quarters in favor of state medicine, these numerous hospitals may later offer an opportunity for exploitation in this field.

At the St. Louis session your committee stated that the Veterans' Administration in a report submitted to Congress on Jan. 30, 1939, showed that, of the 50,670 veterans under treatment at the end of 1938, 47,285 were in facilities controlled by the Veterans' Administration, 2,512 in other government hospitals and 873 in state or civil institutions.

Dr. Charles M. Griffith, medical director of the Veterans' Administration, reports as of the end of the fiscal year June 30, 1939, that they had hospital facilities in eighty-four locations in forty-five states and the District of Columbia. These had a capacity of 54,779 beds. There were, too, 16,345 beds set aside for domiciliary care in facilities under the jurisdiction of the Veterans' Administration, making a total of 71,124 beds controlled by the Administration. In addition, the Administration utilized 2,748 beds in other government hospitals.

In addition to this there is construction work in progress on forty-five major projects to provide 9,710 additional beds, some of these projects being new buildings and others being alterations and extensions.

There are 1,630 full time physicians and 4,267 nurses on duty in these field stations.

Your committee calls your attention to a notable variation in the distribution of cases in the last sixteen years:

	June 30, 1923	June 30, 1939
Neuropsychiatric	39%	57.68%
General medical and surgical.....	20%	33.12%
Tuberculous type	41%	9.20%

Dr. Griffith states that the Veterans' Administration requires that a veteran in order to be accepted for hospital treatment of a disease or injury incurred or aggravated in military or naval service must have an honorable discharge. If the applicant has had only service in peace time, he must have been discharged for disability in line of duty or be receiving pension for service-connected disability. For hospital treatment of a condition not attributable to military or naval service, the applicant must meet various requirements: length of service, character of discharge, type of disability and economic status. All of this leaves the impression that, while any veteran can be treated in the Veterans' Hospitals, there are certain difficulties which he has to overcome if his eligibility is not clearly shown.

Last year your committee made a report regarding the activities of the Farm Security Administration. It feels that it should bring to your attention some abridged statements of the Chief Medical Officer, Dr. R. C. Williams, and a digest of some of the rules and regulations under which the Farm Security Administration is operating.

Dr. Williams claims that, before any medical care plan is established in a state, an understanding is worked out with the state medical association and then agreements are worked out with the local medical societies. These agreements recognize three basic principles: (1) fee for borrower families determined by ability to pay as indicated by their farm plan; (2) free choice of participating physicians, and (3) funds set aside at beginning of the operating period in charge of a bonded trustee. The benefits included are (1) ordinary medical care (examination, diagnosis and treatment), (2) obstetric, (3) ordinary drugs, (4) emergency surgery as determined by the physician in charge, (5) emergency hospitalization and (6) many counties are adding dental service.

Families under typical agreement usually put into a pool from \$15 to \$30 annually. This varies according to benefits, size of average farm income in locality and the size of the family. A typical payment schedule for a low income county would be \$18 for a man and his wife, plus \$1 for each child. Any cooperating physician submits to trustees a monthly statement for services given to a member of the plan. These monthly bills are reviewed by a committee of physicians from the local society and each physician's pro rata share is determined if bills exceed the amount available. Bills are paid in full if there are sufficient funds. Dr. Williams stated that payments to physicians average 64 per cent of bills presented, which is said to be a higher percentage than they receive from ordinary practice among low-income farm families. The local committee which reviews the statements makes adjustments when necessary, thereby limiting misunderstanding. A county supervisor acts in a like capacity in checking on demands of families for service. In case a family is abusing the program, satisfactory adjustments can usually be made; otherwise the family is dropped from the program.

This pool plan is practical for physician and patient. The physician is available when protracted illness develops and when the family under ordinary circumstances could not afford to pay. It also distributes individual cost of medical care over many families, so that cost of severe illness to one family can be more nearly equalized. The heart of the program lies in a clear understanding by physicians and families as to what may be expected under this procedure as well as its limitations. It is a special plan for an underprivileged group of farm people. The program for medical care of the Farm Security Administration would have to have considerable modifications and changes if transferred to any other segment of the population.

One of our committee, Dr. F. S. Crockett, has been in touch for several years with the Associated Women of the American Farm Bureau Federation and the progress made has previously been reported to this House. During the past year a committee of the Indiana Farm Bureau has been appointed to study all

phases of a cash indemnity medical care plan suited to the needs of rural communities. It seems now that the desire for medical cooperation has lessened, no doubt owing to an improved economic situation.

In reference to the President's hospital construction program, at his invitation a conference was held with him on Jan. 10, 1940, to discuss his suggestions relative to hospital construction for certain depressed areas in this country. Dr. Abell's committee, including Drs. Walter F. Donaldson, Walter E. Vest, Frederic E. Sondern, Fred W. Rankin, E. H. Cary and Henry A. Luce, who unfortunately could not attend because of illness, along with Drs. West, Hayden, Leland, Cutter and representatives of the American, Protestant and Catholic Hospital Associations were present at this conference. The President made known to the group that he would have a bill drawn to construct fifty hospitals throughout the country where it could be shown that they were needed and that the people would maintain them. He also made it clear at that conference that there would be provided no subsidies for maintenance.

Since that meeting the Wagner-George bill has been introduced into the Senate. A companion bill was introduced in the House by Congressman Lea of California. At the hearing of the subcommittee of the Senate Committee on Education and Labor appeared Drs. West, Fishbein, Leland and Cutter.

Subsequently the Taft Hospital Construction plan submitted in the Senate was an interpretation largely of the attitude of the profession and, it is understood, the Wagner-George bill was redrawn utilizing several features of the Taft Amendment, but as it passed the Senate May 30 it contains some points with which the medical profession does not agree and to which its attention should be directed: 1. Definition of the term hospital in the bill should be modified to exclude health, diagnostic and treatment centers. 2. All projects to be constructed under the bill should be subject to the approval of the contemplated National Advisory Hospital Council. 3. Reference to osteopathic representation on the proposed council should be eliminated. 4. The method of selecting members of the proposed council should be given further consideration.

It is needless to say that the invasion of Norway and the military events which have occurred since this invasion have changed the situation so much that it remains to be seen whether the enactment of legislation affecting medicine will pass the present Congress.

Your committee in closing wishes to express its deep sense of loss in the death of one of its original members. Dr. C. B. Wright was intelligent and honest, faithful to his ideals, frank in expressing his judgment but at all times cooperating with his conferees for the best interest of the medical profession.

Respectfully submitted.

E. H. CARY, Chairman.
F. S. CROCKETT.
R. L. SENSENICH.
J. H. J. UPHAM.

Report of Reference Committee on Rules and Order of Business

Dr. John H. O'Shea, Chairman, presented the following report, which was adopted on motion of Dr. O'Shea, seconded by Dr. H. B. Everett, Tennessee, and carried:

Your reference committee recommends that the Executive Session of this House of Delegates be held at 2 p. m. on Tuesday, June 11. It further recommends that the House be constituted of and the attendance limited to the following: officers of the Association, members of the House of Delegates, alternate members of the House of Delegates, presidents and secretaries of constituent state associations, executive secretaries of constituent state associations, the Surgeon Generals of the United States Army, the United States Navy and the United States Public Health Service and such others as the House of Delegates may by motion admit.

Respectfully submitted.

JOHN H. O'SHEA, Chairman.
W. D. JOHNSON.
E. F. CODY.
H. S. READ.
E. H. SKINNER.

Report on Change in Name and Policy of the Council on Foods

Dr. James S. McLester, Chairman of the Council on Foods, presented the following statement, which was referred to the Reference Committee on Reports of Board of Trustees and Secretary:

The Board of Trustees has acted favorably on the request of the Council on Foods that its name be changed to the Council on Foods and Nutrition. May I tell you briefly of a change in scope which has made advisable this change in name?

The original aim of the Council on Foods, in brief, was to promote accuracy in labeling and truthfulness in the advertising of foods. Its efforts have met with gratifying success. Manufacturers in overwhelming numbers have shown hearty cooperation, and the public has come universally to look on its seal of acceptance as an evidence of genuine merit. The success of this work, however, has made necessary a restriction in scope; the classes of food to be considered must definitely be curtailed.

This change has been accelerated by two trends: First, the Federal Food and Drug Administration has assumed the function of fixing standards and of defining foods and has stipulated that the ingredients of processed foods must be declared on the label, which makes unnecessary much of the work in which the Council originally pioneered. The Council does not, however, propose to retire from this field—far from it—but in order to avoid duplication of effort and possible conflict of authority it wishes to restrict its consideration of foods largely to the study of individual products intended for the feeding of infants, of special foods for the sick and of foods which, with a view to improving their nutritive value, have been manipulated by the addition of vitamins, minerals or other dietary essentials. This part of the work should be continued.

The second trend is seen in the epoch-making advances which are being made in the science of nutrition. Great discoveries are coming so rapidly that the public, and even the medical profession, is at times a bit bewildered. As a result, the Council finds itself exercising an important function not exercised by any other competent organization—that of assembling information and expressing authoritative opinion in the field of nutrition. It has published numerous special articles, singly and in series, with the object of clarifying this newer knowledge of nutrition and of presenting it in concrete form. It has been accorded a certain leadership and it wishes to meet this in a manner befitting a council of the American Medical Association.

With your approval, therefore, and with that of the Board of Trustees, the Council would like, while restricting its scope in one field, that of food products, greatly to broaden its work in another, that of nutrition, and accordingly to change its name to the Council on Foods and Nutrition.

Report of Reference Committee on Legislation and Public Relations

Dr. F. S. Crockett, Chairman, presented the following report, which was adopted, after discussion, section by section and as a whole, on motions of Dr. Crockett, duly seconded and carried:

1. Resolution on Military Status of and Pay to Physical Therapy Technicians: Your reference committee recommends that the Resolution on Military Status of and Pay to Physical Therapy Technicians, which had been introduced by Dr. Rollo K. Packard, Illinois, be referred to the Council on Physical Therapy for its consideration.

2. Resolution on Legislation Having to Do With the Care of the Sick: Your reference committee recommends that this resolution, introduced by Dr. John Z. Brown, Utah, be not adopted.

Your reference committee approves in principle any effort improving medical care of the indigent, but it wishes to call the attention of the House to the report of the Reference Committee on Consideration of the Wagner National Health Bill as reported at the St. Louis session last year, section 15, reading as follows: "The House of Delegates would urge the development of a mechanism for meeting the needs for expansion of preventive medical services, extension of medical care for the

indigent and the medically indigent, with local determination of needs and local control of administration, within the philosophy of the American form of government and without damage to the quality of medical service."

3. Resolution on Heroin: With reference to the resolution submitted by Dr. A. A. Herold, Louisiana, and published in the Secretary's Report, your reference committee has consulted the Bureau of Legal Medicine and Legislation and finds that a similar resolution was considered by the House of Delegates in 1927, which was referred to the Board of Trustees with a request that the Council on Pharmacy and Chemistry in conjunction with the Section on Practice of Medicine and the Section on Pharmacology and Therapeutics secure a reinvestigation of the use of heroin in the practice of medicine. In 1928 the following report was made to the House of Delegates: "This matter was referred to the Council on Pharmacy and Chemistry and that Council has submitted a report to the Board of Trustees to the effect that heroin is not considered to be therapeutically indispensable and that the Council on Pharmacy and Chemistry renews its approval of the provisions of the law prohibiting the importation of opium for the manufacture of heroin."

In view of the resolution showing renewed interest on the part of the profession, your reference committee recommends that the Board of Trustees be again requested to have the Council on Pharmacy and Chemistry review the needs for the use of heroin as a therapeutic agent.

4. Resolution on Medical Service Plans: Your reference committee recommends the approval by the House of Delegates of the resolution presented by Dr. L. G. Christian, Michigan, relative to the coordination of medical service plans. It recommends that the Board of Trustees be requested to direct the Bureau of Medical Economics to collect experience data and other pertinent information concerning prepayment medical care arrangements in order that sound practices may be developed and maintained, and to take steps looking to the coordination of medical service plans. Your reference committee also recommends that the House of Delegates reaffirm the principles pertaining to medical service plans previously adopted and urges the acceptance and application by all medical societies of the principles that prepayment group medical arrangements shall be controlled by the medical profession and that medical services be excluded from all group hospitalization plans but that, if the inclusion of special medical services are deemed necessary, the cost of such services be paid for in cash by the group hospitalization corporation directly to the insured persons.

Your reference committee suggests the importance of complete and accurate data in order that the intent of the resolution may be realized. It is recommended, therefore, that the constituent state medical associations of the states in which medical care plans are now operating or in which such plans may be formed undertake to secure the full cooperation of such medical care organizations with the Bureau of Medical Economics.

Respectfully submitted.

F. S. CROCKETT, Chairman.
CHARLES J. WHALEN.
L. G. CHRISTIAN.
WINGATE M. JOHNSON.
THOMAS A. MCGOLDRICK.

Report of Reference Committee on Sections and Section Work

Dr. Stanley H. Osborn, Chairman, presented the following report:

1. Section on Anesthesiology: Your Reference Committee on Sections and Section Work has carefully considered the content of the report of the Council on Scientific Assembly and concurs in that portion of the report which recommends the establishment of a Section on Anesthesiology. It has been evident for several years that the physicians interested in this specialty have needed a place to discuss their scientific papers. Your reference committee feels that the formation of such a section will fill a pressing need for the anesthesiologists and others who have an allied interest and recommends the establishment of such a section.

2. Section on Experimental Medicine: Your reference committee has carefully gone into the matter of the suggestion of the formation of a Section on Experimental Medicine. It feels that

the proposed union of the Section on Pathology and Physiology and the Section on Pharmacology and Therapeutics into a Section on Experimental Medicine would be of considerable value to these sections and bring to the new section discussion on the new fields of research in medicine. Your reference committee suggests that the Council on Scientific Assembly continue its efforts in consideration of the feasibility of combining the two sections and forming a Section on Experimental Medicine.

3. Scientific Assembly: Your reference committee has noted in the scientific program a trend toward bringing before the membership of the Association the leaders in discoveries and new developments in different branches of medicine and commends the manner in which the Council has presented these selected subjects before the members in the General Scientific Meetings particularly and has sponsored the holding of combined section meetings when subjects were of ancillary interest.

Respectfully submitted.

STANLEY H. OSBORN, Chairman.
GEORGE G. WARD.
THOMAS F. THORNTON.
SAMUEL P. MENGEL.
JOSEPH F. SMITH.

The first section of the report of the reference committee, approving the establishment of a new section to be called the Section on Anesthesiology, was adopted on motion of Dr. Osborn, seconded by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, and carried.

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, this action of the House recommending the establishment of a Section on Anesthesiology was referred to the Reference Committee on Amendments to the Constitution and By-Laws for presentation of the necessary amendment to the By-Laws.

On motions of Dr. Osborn, duly seconded and carried, the second and third sections of the report of the reference committee, as well as the report of the reference committee as a whole, were adopted.

NEW BUSINESS

Resolution Approving American Museum of Health and Urging Support of Similar Museums in Other Parts of the United States

Dr. A. T. McCormack, Kentucky, introduced the following resolution, which was referred to the Reference Committee on Miscellaneous Business:

WHEREAS, The education of the public in matters concerning medicine and the prevention of disease is of the utmost national importance in a democracy which is dedicated to the conservation and enrichment of life; and

WHEREAS, The American Museum of Health has demonstrated at the New York World's Fair that an exhibit which is scientifically authentic and dramatically presented is an effective instrument in health education; and

WHEREAS, The present administration of the city of New York under the direction of Mayor Fiorello H. La Guardia has given evidence of its broad vision in assuming the permanent establishment of this museum as part of the health program of the city of New York; therefore, be it

Resolved, That the American Medical Association at its ninety-first annual session, held in New York, approves of this museum, urges its constituent and component societies to support and promote the development of similar museums in other parts of the United States and instructs its Board of Trustees, officers and employees to give all possible support to such museums wherever they may be developed in the United States in conjunction with local medical organizations.

Resolutions on Protection of Practices of Physicians Who Might Be Called to Military Service

Dr. Carrington Williams, Virginia, presented resolutions dealing with the protection of the practices of physicians who might be called to military service, which were referred without reading to the Reference Committee on Executive Session.

Attendance at Executive Session

On motions duly made, seconded and carried, attendance at the Executive Session was granted, in addition to those indicated in the Report of the Reference Committee on Rules and Order of Business adopted by the House this morning, to full time executive secretaries of component county medical societies; Dr. W. A. Howard, past president of the Oklahoma State Medical Association; members of councils of constituent state medical

associations, and officers of component county and constituent state societies who may wish to attend.

The House recessed at 11:30 a. m., to reconvene in Executive Session at 2 p. m.

Tuesday Afternoon, June 11

The House of Delegates was called to order by the Speaker at 1:45 p. m. to hear new and unfinished business before going into executive session.

Proposed Amendment to By-Laws

Dr. J. E. Paullin, Section on Practice of Medicine, presented an amendment to chapter XV, section 1, of the By-Laws, changing number 16 to number 17 and inserting "16. Anesthesiology" after "15. Radiology," so that section 1 of chapter XV of the By-Laws shall read:

SECTION 1. Titles of Sections of Scientific Assembly.—The Scientific Assembly of the American Medical Association shall be divided into the following sections:

1. Practice of Medicine.
2. Surgery, General and Abdominal.
3. Obstetrics and Gynecology.
4. Ophthalmology.
5. Laryngology, Otology and Rhinology.
6. Pediatrics.
7. Pharmacology and Therapeutics.
8. Pathology and Physiology.
9. Nervous and Mental Diseases.
10. Dermatology and Syphilology.
11. Preventive and Industrial Medicine and Public Health.
12. Urology.
13. Orthopedic Surgery.
14. Gastro-Enterology and Proctology.
15. Radiology.
16. Anesthesiology.
17. Miscellaneous Topics. (As amended, 1932, 1937, 1940.)

This proposed amendment was referred to the Reference Committee on Amendments to the Constitution and By-Laws.

Report of Judicial Council

Dr. George Edward Follansbee, Chairman, presented the following supplementary report of the Judicial Council, which was referred to the Reference Committee on Amendments to the Constitution and By-Laws:

1. Principles of Medical Ethics Pertaining to Patents and Perquisites: In its primary annual report this year the Judicial Council in its consideration of the subject of patents stated: "The Judicial Council has given extended consideration as to how to maintain the principle of benefit to humanity as the prime consideration in our Principles of Medical Ethics and at the same time to satisfy the reasonable demand that a physician, having given time and money for the benefit of humanity, shall be permitted to protect himself against exploitation by others and to receive reimbursement for his expenditure." The Council is now obliged to admit its failure to find a solution.

Its study developed certain patentable features not now included but which should be, and it believes the wording of the section can be improved. The Council therefore recommends that The Principles of Medical Ethics, chapter III, article 1, section 5, be amended to read "It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is equally unprofessional, by ownership or control of patents or copyrights, either to retard or to inhibit research or to restrict the benefit to patients or to the public to be derived therefrom. It is unprofessional to accept rebates on prescriptions or appliances, or perquisites from attendants who aid in the care of patients."

2. Membership in the American Medical Association: As stated in the report of the Secretary and also in the report of the Judicial Council, there are divergences of qualifications for membership in component county and constituent state associations which operate to advantage in representation in this House

qualifications for membership in their component county societies are broad and inclusive as against those state associations that are more restrictive. Some component county societies admit osteopaths as such, others admit osteopaths who are licensed by the state to practice medicine and still others deny membership to any osteopath. Some societies require licensure by the state to practice medicine, while others do not. The members of the American Medical Association are the members of the component county medical societies whose names are certified to the American Medical Association by the constituent state medical associations.

The component county medical societies have various classifications of members. The Judicial Council knows of at least eight; viz., regular, active, associate, affiliate, honorary, retired, intern and nonresident. Some constituent state associations report only regular or active members, some include other classes and at least one reports all classes of membership in the component county societies for membership in the American Medical Association.

Such a wide diversity of qualifications for admittance to the component county medical societies, such a variety of classification of membership and such irregularity of reporting to the American Medical Association can hardly avoid violation of the democratic principle of equal representation and opportunity for all.

The American Medical Association has no power of compulsion to require any component county medical society or constituent state medical association to do in respect to its membership anything the county or state organizations decline to do on request. It can govern only its own membership, but compulsion should not be needed. In the interest of all, the constituent associations should be capable of and willing to bring about uniformity out of the present chaotic situation.

In its study and review of membership in organized medicine the Judicial Council has noted the diversity of activities which have claimed the training and knowledge of the medical graduate and have been absorbing him rapidly from the field of his primary object in obtaining that education and knowledge—the care of the sick. That primary object still activates the majority of medical graduates but greater and greater numbers of them are being attracted and absorbed into industry, teaching, research and other activities removed from medical practice and its sympathies and ideals. They live in a different world. Some belong to organized medicine, many do not. The question arises as to whether they should be in an organization such as ours or whether they belong in organizations in the line of their activities. Almost one hundred years ago, when the American Medical Association was formed, with few exceptions a doctor was a doctor whose only interest in life was the care of suffering humanity. That condition remained for many years and our organization has grown in number along with the population. But times have changed and many graduates in medicine have found interest and occupation in fields some of which are far removed from the needs, purposes and ideals which created this organization and produced its astounding growth in members and in service to humanity. The question arises: Are we growing out of our real reason for existence—the benefit of humanity—into something else? The Council believes that the evidence, slight as it may be, is sufficient to sound a note of warning. Thought should be given as to whether the time has come when we should restrict membership in this body to those physicians interested enough in the science of medicine and its practice to have taken at some time the trouble to become licensed to practice medicine. The Judicial Council recommends that only Doctors of Medicine licensed to practice medicine and whose licenses are registered in the county or state in which they make application be accepted for full membership in the American Medical Association.

Respectfully submitted.

GEORGE EDWARD FOLLANSBEE, Chairman.

Report of Reference Committee on Reports of Officers

Dr. Walter E. Vest, Chairman, presented a report which was amended to read as follows:

ADDRESS OF THE SPEAKER

1. Your reference committee would stress especially the point that the Speaker that scientific achievement, unless based

on sound ethical principles and balanced by moral character in its proponents, may be far more destructive than constructive and that the greatness of the organized medical profession consists in its exemplification of these principles in its aims, endeavors and achievements.

Your reference committee would stress also the point made by the Speaker that the American Medical Association is a true democracy in that it is the only medical organization including all segments of the profession, it promotes freedom for all, including both profession and laity, and its House of Delegates affords an open forum to which all questions touching on health and medicine may be brought for discussion and decision.

ADDRESS OF PRESIDENT

2. Your reference committee would especially commend the suggestion of the President of the American Medical Association that further effort be made in educating the profession generally as to the activities and accomplishments of the headquarters of the American Medical Association. Certainly all the state organizations and the larger county societies could have such efforts made, and the more generally the work at headquarters is understood and appreciated, the greater is the solidarity of the profession generally. Your reference committee is so impressed with the weight of the duties of the presidency of the American Medical Association as to venture the suggestion that consideration be given to the employment of a man at headquarters who could act in the capacity of field agent and aid in educating not only the medical profession but also the laity and especially the other professions as well.

3. Your reference committee would urge on this House of Delegates the absolute necessity of following the advice of the President of our Association in unstinting support of the federal government in the campaign for preparedness in the present chaotic state of a world in which right and reason have been cast to the winds and only brute force is recognized and heeded.

4. Your reference committee advocates unwavering support of the demand of the President of our Association for the continued freedom of medicine from political domination. It admits the necessity, however, of the surrender of a measure of freedom under the stress of military necessity but demands that provision be made for the return of full freedom when the military emergency shall have passed.

5. Your reference committee commends especially the comments of the President of our Association on the basic causes of disease inherent in poor housing, poor diet, poor raiment and the lack of observance of the golden rule in all walks of life. Governmental efforts at remedying these basal defects in our American society of today and frank recognition by government of the common sense principle that the medical profession is the only segment of our population equipped by education and training to initiate, advise on and carry through a satisfactory national health program would go far toward ameliorating our health and medical problems.

ADDRESS OF PRESIDENT-ELECT

6. Your reference committee would emphasize the danger pointed out by our President-Elect not only to medicine but to society in general of the world chaos of today. It would stress particularly the loss of the sense of responsibility of the individual for his own welfare and that of his dependents and the gradual trend toward the ideology of the totalitarian state—a philosophy incompatible with a free democracy and the greatest measure of individual freedom. The organized medical profession, by its traditional freedom and democracy, not only is able to point the way to a restoration of individual and community self reliance and stability but is definitely obligated to do so.

7. Your reference committee approves the support, voiced by our President-Elect, of the plan of the President of the United States for the construction of small hospitals by using federal funds in communities where actual need can be shown, provided there is strict adherence to the President's plan for construction only where actual need can be shown, and then only where the local governmental unit can demonstrate its ability and willingness to maintain the institution when built. Your reference committee feels that it is a duty of the medical profession to

emphasize to local governmental bodies applying for hospital construction the actual cost of maintenance of such institutions.

8. Your reference committee especially commends to this House of Delegates the suggestion offered by our President-Elect that it is a responsibility of the medical profession to initiate programs to meet community needs for medical and health betterment. Moreover, the medical profession not only should lead in health movements but should engage in active support of all programs for community betterment and should guide the health and medical phases of all such activities.

9. Your reference committee would urge on each member of this House of Delegates the necessity for careful study of the duties of its members as outlined by our President-Elect. We are the liaison officers between the personnel we represent and the national organization and should function as such. We should know every phase of the needs of our constituencies as well as the program and work of the national organization and should disseminate this knowledge to layman and physician alike. Your reference committee commends also his remarks on the responsibilities and duties of this House of Delegates as an organized body.

10. Your reference committee commends further the historical sketch given by our President-Elect of the efforts which have been made by the American Medical Association to secure the unification and integration of the health activities of the federal government. Even though such efforts extending over almost three quarters of a century have been unavailing, we should continue them until success crowns our efforts, for nothing is ever settled until it is settled right.

11. In closing, your reference committee would commend to the House of Delegates and to the profession generally the suggestion of our President-Elect that "the medical profession should go along with the government as far as possible for the common good without sacrificing its individual interests in the care of the sick and its collective interests in the prevention of disease." It is the opinion of your reference committee that government, the people and the medical profession will all fare better if government and the profession sit down around the conference table and agree on health plans and activities that can be mutually followed.

Respectfully submitted.

WALTER E. VEST, Chairman.
WILLIAM R. BROOKSHER.
JAMES Q. GRAVES.
WALTER B. MARTIN.
ANDREW F. MCBRIDE.

The report of the reference committee was adopted, as amended, section by section and as a whole, on motions of Dr. Vest, duly seconded and carried after discussion.

Report of Reference Committee on Hygiene and Public Health

Dr. E. S. Hamilton, Chairman, presented the following report, which was adopted on motion of Dr. Hamilton, seconded by Dr. Felix J. Underwood, Mississippi, and carried:

Your reference committee recommends the passage of the Resolutions on Venereal Disease Program, which had been introduced by Dr. J. N. Baker, Alabama.

Respectfully submitted.

E. S. HAMILTON, Chairman.
FELIX J. UNDERWOOD.
W. F. DRAPER.
KARL S. J. HOHLEN.
CLYDE L. CUMMER.

Report of Reference Committee on Reports of Board of Trustees and Secretary

Dr. Ben R. McClellan, Chairman, presented the following report, which, on motion of Dr. McClellan, duly seconded and carried, was adopted by a rising vote, there being no negative votes:

REPORT OF THE SECRETARY

Your reference committee congratulates the Secretary and the Association in general on the gratifying increase in membership and Fellowship during the last year. It is a source

of satisfaction to observe the increased interest in the affairs of organized medicine displayed by all members of component county medical societies and constituent state medical associations.

In regard to field work, your reference committee believes that ways and means should be devised to lighten the burden now being carried by the President, President-Elect and general officers of the Association, and suggests that the number of those charged with this responsibility be augmented.

Your reference committee expresses appreciation of the valuable service rendered by our beloved Secretary and realizes that his brief report in no way discloses the tremendous amount of work and effort that he expends in the performance of his duties.

REPORT OF BOARD OF TRUSTEES

Your reference committee is impressed with the fact that during the last year there was an expenditure of nearly half a million dollars in carrying on the work of the various councils, bureaus and departments of the Association alone. The average member does not appreciate the expense involved in carrying out successfully the extensive activities of the Association. In view of the fact that demands on the treasury are increasing and returns on investments are decreasing to a serious extent, your reference committee emphatically suggests that any proposed activity, program or study requiring the expenditure of funds be given the most careful consideration. It is gratifying to note the ever increasing popularity of *THE JOURNAL*, which is due in the main to the excellence of its many departments.

The work in press relations deserves commendation. Wide distribution and control of information concerning matters of health among the newspapers of the country by means of the *AMERICAN MEDICAL ASSOCIATION NEWS* has been of great value in disseminating authentic information and improving the status of medicine in the eyes of the public.

Your reference committee believes that the financial loss sustained in the publication of the special journals is more than balanced by the services rendered subscribers in making available specialized information. This is a contribution advancing scientific medicine and aiming at improved standards of practice. Your reference committee therefore urges increased support by the members of our Association.

The determination on the part of the Board of Trustees to use every effort and means to defend the American Medical Association against the charges that it is guilty of conspiracy and of violating federal antitrust laws should receive the whole-hearted endorsement of the House of Delegates.

The importance of the work of the Council on Pharmacy and Chemistry, which has been carried on for a period of thirty-five years, cannot be overemphasized. Those members who have given so unselfishly of their time and effort, such as Dr. Hatcher and Dr. Sollmann, are deserving of the greatest praise.

The efforts of the Council on Foods to establish a rational basis in the use of vitamins and in the broader aspects of nutritional problems merits our commendation. It is to be hoped that some of its policing duties in regard to the merits of various foods will be taken over by federal bureaus, where they belong.

Time will not permit an adequate analysis of the work of the Council on Physical Therapy and the Council on Industrial Health. Your reference committee recommends, however, that members of the House familiarize themselves with the activities of these bodies. The value of the Council on Physical Therapy is becoming annually more apparent. Your reference committee notes with approval the very complete program it has initiated and developed. Standardization of apparatus and procedure, well planned research and evaluation of experience in the use of various modalities will do much to safeguard the patient and the profession in the field of physical therapy.

The Bureau of Health Education deserves great credit for carrying on its many activities. Special commendation should be given for its contact with government and lay organizations. Your reference committee believes that the efforts of this bureau should be endorsed and expanded.

The retirement of Dr. William C. Woodward, who directed the activities of the Bureau of Legal Medicine and Legislation

for eighteen years, deserves the attention of the House of Delegates. We are all familiar with the great work he has done in behalf of American medicine and your reference committee believes that it voices the sentiments of the House when it conveys to him a special message of appreciation and the wish that he may continue to enjoy good health for many years to come.

Your reference committee suggests careful study of the valuable report of the Bureau of Medical Economics. The appropriation by hospitals of the services of the physician both clinical and laboratory is to be deplored and if allowed to continue and develop will threaten the future of medicine and endanger the welfare of the public. It is high time that the medical profession through its state and county societies assert its rights in no uncertain terms regarding these abuses. The ten principles adopted by the House of Delegates in 1937 and revised and reaffirmed in 1938 provide that hospital service insurance should not include any type of medical care and your reference committee again stresses the importance of this declaration.

Your reference committee respectfully suggests that some agency of the American Medical Association study the indemnity plans offered by old line insurance companies to the end that the physician and the insurance company may arrive at a better understanding of their common interests.

The responsibility of the Bureau of Investigation has been greatly increased since the adoption of the Wheeler-Lea Amendment to the Federal Trade Commission Act. Your reference committee notes with satisfaction the Bureau's contacts with the lay public.

Your reference committee congratulates the Bureau of Exhibits on the high quality of the exhibits at our annual sessions as well as of those displayed at the New York and San Francisco fairs.

In conclusion, your reference committee marvels at the untiring efforts and record of achievement of your Board of Trustees.

Respectfully submitted.

BEN R. McCLELLAN, Chairman.
W. F. BRAASCH.
JOHN M. BIRNIE.
JOHN H. FITZGERDON.

Attendance at Executive Session

On motions, duly made, seconded and carried, attendance at the Executive Session was granted, in addition to those previously indicated, to Drs. Ross A. Woolsey, past president of the Missouri State Medical Association; Grady N. Coker, past president of the Medical Association of Georgia; Tom B. Throckmorton, who previously served in the House of Delegates; William H. Ross, past president of the Medical Society of the State of New York; J. Milton Robb, past president of the Michigan State Medical Society, and N. S. Davis III, president of the Chicago Medical Society.

Executive Session—Tuesday Afternoon, June 11

The Sergeants-at-Arms polled the House, after which, on motion of Dr. R. W. Fouts, Vice Speaker, duly seconded and carried, the House went into Executive Session at 2 p. m., with Dr. H. H. Shoulders, Speaker, presiding.

Report of Reference Committee on Executive Session

Dr. Edward R. Cunniffe, Chairman, presented the following report, which was adopted, after discussion, section by section and as a whole, on motions of Dr. Cunniffe, duly seconded and carried:

1. Resolutions Authorizing Organization of a Committee on Medical Preparedness: Your reference committee is proud to see the patriotic tradition of the medical profession so well exemplified in these spontaneous and thorough resolutions of our Board of Trustees. It is in strict accord with the history and traditions of the American Medical Association, which has always been foremost in offering all its facilities and services to our government in times of stress or emergency. Your reference

committee has learned that through an unintentional omission the name of the Chairman of the Board of Trustees was not included among the ex officio members and the method of appointing the members from the House was not specified.

Your reference committee feels that the Chairman of the Board of Trustees should be included among the ex officio members and that the members selected from the House of Delegates should be appointed by the Speaker of the House of Delegates.

Your reference committee wholeheartedly approves these resolutions and moves their adoption with the inclusion of these two changes.

2. Procurement of Professional Personnel for Medical Corps of Army in Event of a National Emergency: Your reference committee has carefully considered this plan presented by Dr. George C. Dunham and is pleased to see such evidence of a desire for cooperation. It endorses the principles advocated but feels that the details should best be left to the committee established by the resolutions of the Board of Trustees.

Your reference committee feels that in the choice of personnel every physician capable of rendering service should be given opportunity to offer such service to our government; that in the selection of personnel for special services there should be no arbitrary selection on the basis of organization or bodies thus far still in a developmental stage, but rather that membership in well recognized scientific specialty organizations, hospital appointments and similar qualifications should also be considered for this purpose.

Your reference committee therefore recommends that the thanks of the House be extended to Dr. Dunham and that the general principles of his plan be endorsed.

3. Resolution on Military Activities: The following resolution, presented by Dr. George R. Dillinger, Indiana, was considered by your reference committee:

WHEREAS, Worldwide social change, instability and a state of war exist among other nations; and

WHEREAS, These conditions threaten our nation and our American ideals; and

WHEREAS, The American Medical Association believes that national unity and a prepared national defense offer the best manner for defending our nation and the American way of living against these conditions; therefore be it

Resolved, That the American Medical Association constitute and empower a committee to act in liaison with proper military and civil authorities and veterans' organizations to make a complete study and prepare a detailed program for medical coordination and preparedness in the event of M-day (mobilization-day) becoming a reality, to the end that in such event an unhurried and effective program will be established supplying first the medical needs of the military; second, the proper medical care at home during a military emergency.

Your reference committee wishes to congratulate the Indiana State Medical Association on its early consideration of medical defense and to recognize the value of its committee, which is already functioning and will be of great aid to the American Medical Association committee. It recommends the approval of the principles of the resolution.

4. Resolutions on Protection of Practices of Physicians Who Might Be Called to Military Service: Your reference committee had before it the following resolutions introduced by Dr. Carrington Williams, Virginia:

WHEREAS, Military preparations in the United States will require the use of a large number of members of the American Medical Association as officers in the Medical Corps of the Army and of the Navy; and

WHEREAS, The average physician has responsibilities and financial obligations out of proportion to the pay of these officers; and

WHEREAS, The medical profession has always recognized the principle of protecting the interests of fellow physicians; therefore be it

Resolved, That the House of Delegates recommends to the constituent state and component county societies that they work out plans whereby the practice of physicians absent from their homes in the service of our military and naval forces both in periods of training and in actual service be protected and whereby some financial return from such practice be secured for the physician so absent in the service; and be it further

Resolved, That the House of Delegates urges the component societies to make every effort to work out such plans in the shortest possible time as a part of the contribution of this Association to military preparedness; and be it further

Resolved, That the Secretary be requested to forward copies of these resolutions to the presidents of the constituent state and component county societies.

Your reference committee, having carefully considered these resolutions, wishes to endorse in principle the ideas postulated and to urge further that the constituent state and component county societies be authorized to set up committees to work out methods to protect both the financial and the professional interests of physicians who may be engaged in either temporary or continuous military service.

5. Resolution Concerning Certain Objectionable Practices of Insurance Companies: Your reference committee considered the following resolution introduced by Dr. John H. Fitzgibbon, Oregon, and adopted by the Council of the Oregon State Medical Society:

WHEREAS, Certain insurance companies that write medical indemnity insurance, or medical expense insurance or health and accident insurance or insurance providing for compensation and medical aid benefits to workmen injured in the course of their employment have established the practice of demanding from physicians reports of diagnosis and treatment without the authorization of the assured; and

WHEREAS, Many of these companies also attempt to fix the fee for the physicians' services and often attempt to apply the fee schedule of the state agency administering the workman's compensation law, even though the physician has no contractual or other relationship with the insurance company involved; and

WHEREAS, The fee schedule of the agency administering the various workman's compensation laws has been established in cooperation with representatives of the medical profession and is based on a generous discount from customary fees offered by the medical profession to a nonprofit state agency as a gratuitous contribution to the welfare of their state and community; and

WHEREAS, There is no justification for commercial organizations operating for profit to apply such fee schedules in order to make a profit for themselves; and

WHEREAS, These practices are not confined to Oregon but are national in their scope; now therefore, be it

Resolved, By the Council of the Oregon State Medical Society, (1) That the practices of such insurance companies in demanding from physicians reports of diagnosis and treatment without the authorization of the assured and in so fixing the fee for the physician's services even though the physician has no contractual or other relationship with the company involved are hereby declared to be contrary to the best interests of the public and the medical profession; (2) That a copy of this resolution be sent to the Secretary of the American Medical Association for the attention of the House of Delegates of that Association; and (3) That the delegate from Oregon to the coming session of the House of Delegates of that Association be furnished with a copy of this resolution and that he be asked to have this matter brought to the attention of said House of Delegates.

Recognizing the problems arising from the conditions set forth in this resolution and recognizing injustices connected therewith, your reference committee recommends that the House of Delegates go on record as disapproving practices by insurance companies tending to bind the profession to accept voluntarily fee schedules adopted for the purpose of providing medical service insurance to groups of limited income or fee schedules accepted from the operations of workman's compensation acts.

Respectfully submitted.

EDWARD R. CUNIFFE, Chairman.
FRANCIS F. BORZELL.
JAMES R. McVAY.
J. DUFFY HANCOCK.
EDWARD M. PALETTE.
McLAIN ROGERS.
W. H. MYERS.

Report of the Committee to Confer and Consult with Proper Federal Representatives

In the absence of Dr. Irvin Abell, Chairman of this committee, the Secretary, at the request of the House, read the following report of the committee:

To the House of Delegates, American Medical Association:

Under date of Dec. 29, 1939, the President of the United States, through his secretary, Edwin M. Watson, extended an invitation to the committee appointed by the House of Delegates of the American Medical Association to confer with federal representatives relative to the proposed National Health Program to meet again with him on January 10 to discuss a plan for the construction of hospitals with federal funds, first suggested by him on December 21. Representing the American Medical Association were the following members of the original committee: Drs. E. H. Cary, Walter F. Donald-

son, Frederic E. Sondern, Walter E. Vest, Fred W. Rankin and Irvin Abell. Dr. Austin A. Hayden was appointed by the Speaker of the House, Dr. H. H. Shoulders, to fill the vacancy created by the illness of Dr. Henry A. Luce. Also in attendance representing the Association were Drs. Olin West, Secretary, R. G. Leland of the Bureau of Medical Economics and W. D. Cutter of the Council on Medical Education and Hospitals. In attendance at the conference were representatives of the American, Catholic and Protestant hospital associations in the persons of Drs. Fred Carter and Bert W. Caldwell, Monsignor H. M. Griffin, Rev. Alphonse Schwitalla and Rev. Paul R. Zwilling. The federal representatives included Surgeon General Thomas Parran and Dr. Joseph Mountain of the U. S. Public Health Service and Surgeon General Ross T. McIntire of the Navy. Previous to the conference with the President the representatives of the medical profession and the hospital associations met and discussed the situation in the light of such knowledge as had become available through the letter of the secretary to the President, the press release of the latter on Dec. 21, 1939, and the letter of Surgeon General Parran to state health officers. The following memorandum of principles was adopted without dissent:

Following a discussion participated in by the committee representing the American, the Catholic and the Protestant hospital associations and the American Medical Association, the following points are presented as representing their joint conclusions:

1. Hospitals to be built only where need for same can be shown. Advisory consultation in the determination of such need to be given by the state medical and hospital associations, the state health department and the county judges or officials of the counties in which such hospital service is proposed.

2. Size of hospital to be commensurate with the needs of the community and the ability of the latter to support it.

3. Means for the maintenance and upkeep of such hospitals to rank in importance equal to that of construction.

4. Since the important objective of the program is the service it can render, hospital construction and administration, equipment, staff and personnel to meet the standards which the American Medical Association, the American College of Surgeons and the hospital associations regard as minimal for rendering such service in the various localities. Where needed, since highly specialized facilities and personnel cannot be made available in all places, affiliation with larger hospitals or hospital centers to be had to the end that highly specialized services, diagnostic and therapeutic, be made available to all.

5. Maintenance of a standard of professional and hospital service to keep it efficient and to prove attractive to qualified men and women as a career.

6. Utilization of existing facilities where possible, the program under no circumstances to be allowed to develop into competition with the voluntary hospitals but rather to foster cooperation between the two groups.

7. Many smaller communities can be better served by the utilization of bed vacancies in available existing institutions than by the construction of new hospitals, transportation and per diem expense to be borne by federal, state and/or county funds. Where state and/or county funds cannot be provided, such expense to be met by federal grants-in-aid to, and to be dispensed by, local agencies.

Ambulance service and good roads will permit this type of service to operate safely, efficiently and economically in communities not financially able to support a hospital.

The conference held in the White House at 11 a. m. Jan. 10, 1940, was opened by the President, who discussed in a general way the difficulties, financial and legislative, of providing a national health service such as that proposed in the National Health Program. The impression gained from the President's statements is that the cash involved will, temporarily at least, inhibit the administration from fostering such legislation at the present session of the Congress. The President proposed the construction of hospitals as an experiment, the plan being somewhat as follows: for the present year to construct fifty 100 bed hospitals in communities where such facilities do not now exist. The buildings are to be fire proof, one story in height and of the poured concrete type. By using the models and molds of uniform size and similarity and employing WPA labor, it is estimated that a 100 bed hospital can be constructed and equipped at a cost not to exceed \$150,000, or \$1,500 a bed. It was stated that ten million dollars is available for the first year of the program. When asked if the program would be a continued one, the reply was that the proposed project is an experiment and, if one year's operation proved its success, another fifty hospitals could be considered as a program for another year. Requests for location of hospitals are to come from local communities, which must at the same time furnish

assurance of their ability to maintain and operate them. After construction the hospitals are to be given to the local community, the government retaining title to the properties. The personnel of the staff is to be drawn from the local profession and an effort made to affiliate the newly constructed hospitals with well established nearby institutions, with the view of stimulating and maintaining standards of professional service. The United States Public Health Service will have the duty of inspection with relation to maintenance of standards, executive, administrative and professional. The President expressed the wish that the public may have access to these hospitals for consultative and diagnostic as well as therapeutic service. It was stated that the program in no wise contemplated competition with already existing hospitals, realizing that in isolated instances such conflict will occur. When asked if vacant beds in existing institutions could be utilized for the hospitalization of the indigent, the per diem cost being met by federal funds, the President said that such a plan of federal subsidy would result in an expansion throughout the country so great as to entail a cost that could not be met, concluding with the significant statement that the primary responsibility for the medical care of the indigent rests on the state and the local community. The conference was friendly throughout and the principles of the plan proposed offered nothing of serious moment to which objection was made; its practicability was not under discussion. At the conclusion of the conference a copy of the memorandum of principles listed and a selection of brochures from the files of the American Medical Association assembled by Drs. Leland and Cutter dealing with various hospital problems were left with the President.

Following the conference a meeting of the representatives of the medical profession and the hospital associations was held at which Surgeon General Parran was present. He presented for inspection the hospital blue print prepared by the architect of the WPA engineering department. To those familiar with hospital arrangement it was apparent that alterations were necessary to obtain efficient service. Surgeon General Parran explained the method of selection of hospital sites as follows: Requests for hospitals are to be made by local communities with the concurrence of the local profession, the health or welfare department and responsible local officials, such requests to be considered by the United States Public Health Service and an advisory group of six physicians selected from the country at large, their qualifications to be familiarity with hospital problems. On Sunday, January 21, Surgeon General Parran called the chairman of this committee on the long distance phone relative to the form of the material regarding the hospital program to be presented to the Congress by the President on his birthday, January 30. Dr. Parran stated that he wished the members of our committee to be familiar with the wording and the format of the material, evidently desiring to avoid the criticism made regarding the formulation and introduction of the Wagner bill. He stated that, in order to avoid the possibility of press publicity previous to the presentation by the President, it was further desired that no copies of the tentative program be sent to the members of the American Medical Association and the hospital association committees. I requested that a digest of the material be sent to me, to which he replied that he preferred reading to me over the telephone the entire outline. I presume this to have covered between two and three typewritten pages and as I listened to its reading I detected nothing other than that which had been presented to us in Washington both by the President and later by Dr. Parran at our conference at the Mayflower Hotel. The suggestion is made that the sum of ten million dollars be appropriated for this year and an equal sum as may be needed each year hereafter, the site of the hospitals to be determined by application of the individual communities with assurance of ability to maintain hospitals when constructed; investigation then to be carried out by the United States Public Health Service, with confirmation or rejection by an advisory board of six members to be selected from the country at large and to consist of men more or less familiar with the hospital situation; the hospitals to be manned by local personnel and to be inspected by the United States Public Health Service with a view to the maintenance of standards and efficiency, and the building of the hospitals to be carried out by

the Works Projects Administration and to be of the approximate cost mentioned in our conference.

The Wagner-George hospital construction bill, S. 3230, seeking to make legally active the President's program, was introduced into the Senate and referred to the Senate Committee on Education and Labor. Representatives of the American Medical Association appeared before a subcommittee of this committee and expressed the views of the Association relative to the matter under discussion. The committee retained some of the provisions of the Wagner-George bill, inserted some of the provisions of the Taft plan and added some provisions of its own. Some of the suggestions advocated by representatives of the American Medical Association and of the hospital associations are found in the bill reported by the Senate Committee on Education and Labor to the Senate on April 30. An analysis of this bill is to be found in the Organization Section of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, May 11, 1940, pages 1927 and 1928.

Respectfully submitted.

IRVIN ABELL, Chairman.

After discussion, the report of the committee was referred to the Reference Committee on Legislation and Public Relations.

Dr. R. W. Fouts, Vice Speaker, moved that the House adjourn from executive session and immediately convene in regular session. The motion was seconded by Dr. Walter E. Vest, West Virginia, and carried.

The Executive Session adjourned at 4 p. m.

Tuesday Afternoon—(Continued)

The House reconvened in regular session at 4 p. m. with Dr. H. H. Shoulders, Speaker, presiding.

Message from Dr. Chevalier Jackson

The Secretary read a telegram received from Dr. Chevalier Jackson, Philadelphia, who had been awarded the Distinguished Service Medal.

On motion of Dr. A. T. McCormack, Kentucky, seconded by Dr. J. E. Paullin, Section on Practice of Medicine, and carried, the House recessed at 4:10 p. m.

Third Meeting—Thursday Afternoon, June 13

The House of Delegates was called to order at 1:20 p. m. by the Speaker, Dr. H. H. Shoulders.

Report of Reference Committee on Credentials

Dr. J. Newton Hunsberger, Chairman, stated that a total of 171 delegates had been seated.

Roll Call

The Secretary called the roll and announced that more than a quorum had responded.

Presentation of the Minutes

It was moved by Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, and carried, that the House dispense with the reading of the minutes.

Report of Reference Committee on Amendments to the Constitution and By-Laws

Dr. David D. Scannell, Chairman, presented the following report, which on motions of Dr. Scannell, duly seconded and carried, was adopted section by section and as a whole:

Two matters have been referred to the Reference Committee on Amendments to the Constitution and By-Laws:

1. Proposed Amendment to By-Laws, chapter XV, section 1: This comes from the Reference Committee on Sections and Section Work and has to do with the establishment of a Section on Anesthesiology. In the words of that reference committee, "It has been evident for several years that the physicians interested in this specialty have needed a place to discuss their scientific

papers. Your reference committee feels that the formation of such a section will fill a pressing need for the anesthetists and others who have an allied interest and recommends the establishment of such a section."

Your Reference Committee on Amendments to the Constitution and By-Laws likewise approves the establishment of a Section on Anesthesiology.

Your Reference Committee on Amendments to the Constitution and By-Laws recommends that chapter XV, section 1, of the By-Laws be amended by changing the present number "16" to number "17" and by inserting "16. Anesthesiology" after "15. Radiology," so that chapter XV, section 1, will read as follows:

SECTION 1. TITLES OF SECTIONS OF SCIENTIFIC ASSEMBLY.—The Scientific Assembly of the American Medical Association shall be divided into the following sections:

1. Practice of Medicine.
2. Surgery, General and Abdominal.
3. Obstetrics and Gynecology.
4. Ophthalmology.
5. Laryngology, Otology and Rhinology.
6. Pediatrics.
7. Pharmacology and Therapeutics.
8. Pathology and Physiology.
9. Nervous and Mental Diseases.
10. Dermatology and Syphilology.
11. Preventive and Industrial Medicine and Public Health.
12. Urology.
13. Orthopedic Surgery.
14. Gastro-Enterology and Proctology.
15. Radiology.
16. Anesthesiology.
17. Miscellaneous Topics. (As amended, 1932, 1937, 1940.)

2. (a) Report of Judicial Council Recommending Amendment to Principles of Medical Ethics, chapter III, article I, section 5: The Judicial Council feels that a study of this matter has developed certain patentable features not now included but which should be, believes that the wording of the section can be improved, and recommends that the Principles of Medical Ethics, chapter III, article I, section 5, be amended to read: "Sec. 5.—It is unprofessional to receive remuneration from patents or copyrights on surgical instruments, appliances, medicines, foods, methods or procedures. It is equally unprofessional by ownership or control of patents or copyrights either to retard or to inhibit research or to restrict the benefit to patients or to the public to be derived therefrom. It is unprofessional to accept rebates on prescriptions or appliances, or perquisites from attendants who aid in the care of patients."

Your reference committee approves the recommendation that chapter III, article 1, section 5, of the Principles of Medical Ethics be amended as suggested by the Judicial Council.

2. (b) Report of Judicial Council Dealing with Membership: This subject is discussed by the Council with the profoundest thought and honest and careful consideration. It cannot easily be summarized. Your reference committee feels that the matter is so important and vital that it should be read again, particularly for the benefit of those who did not hear it when read. This involves an amendment to the Constitution and, if adopted, would have to lie over a year for final approval.

Your reference committee approves this recommendation of a change of article 8, section 1, of the Constitution pertaining to members and Fellows and recommends its adoption.

Respectfully submitted.

DAVID D. SCANNELL, Chairman.
WILLIAM WESTON.
BARNEY D. HEIN.
CHARLES A. DUKES.
A. A. WALKER.

On motion of Dr. Scannell, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried, chapter XV, section 1, of the By-Laws was amended in accordance with the recommendation contained in the report of the reference committee.

Section 5, article I, chapter III, of the Principles of Medical Ethics was amended in accordance with the report of the reference committee, on motion of Dr. Seannell, duly seconded and carried.

Resolutions Reaffirming Approval of Activities of Council on Medical Education and Hospitals

Dr. John H. Musser, Acting Chairman of the Council on Medical Education and Hospitals, presented the following resolutions:

WHEREAS, When the American Medical Association was organized in 1847 the following statement was contained in the Plan of Organization: "Inasmuch as an institution so conducted as to give frequent, united and emphatic expression to the views and aims of the Medical Profession in this country must at all times have a beneficial influence and supply more efficient means than have hitherto been available here for enlightening and advancing medical knowledge, for elevating the standard of medical education, for promoting the usefulness, honor, and interests of the Medical Profession, for enlightening and directing public opinion in regard to the duties, responsibilities and requirements of medical men, for exciting and encouraging emulation and concert of action in the profession, and for facilitating and fostering friendly intercourse between those who are engaged in it"; and

WHEREAS, In successive years the Committee on Education reported on existing conditions and made recommendations for the sound development of medical education in this country; and

WHEREAS, Immediately after the reorganization of the American Medical Association in 1903 more active measures were taken to examine and appraise the existing facilities for the training of physicians, leading, in 1904, to the establishment of the Council on Medical Education as a standing committee of the House of Delegates; and

WHEREAS, The Council conducted the first comprehensive survey of medical schools that was ever made and later secured the assistance of the Carnegie Foundation for the Advancement of Teaching, which sponsored the extraordinarily influential Flexner report; and

WHEREAS, Over a period of thirty-five years the Council on Medical Education and Hospitals has, through its inspections, reports and published classifications, steadily raised the standards of medical education and practice; and

WHEREAS, Throughout the period of its existence the Council has sought attainment of objectives equally beneficial to the medical schools, the hospitals, the interns, the medical profession and the public; therefore be it

Resolved, That the House of Delegates reaffirms its approval of the activities of the Council; and be it further

Resolved, That the Council is hereby directed to continue to discharge those functions outlined in chapter IX, section II, of the By-Laws, namely (1) to investigate conditions of medical education including pre-medical, undergraduate and graduate medical education, hospitals and associated subjects and to suggest means and methods by which the same may be improved; (2) to endeavor to further the realization of such suggestions as may be approved by the House of Delegates.

On motion of Dr. Arthur J. Redell, Section on Ophthalmology, seconded by Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology, and carried, the resolutions presented by Dr. Musser were adopted.

Report of Reference Committee on Miscellaneous Business

Dr. Charles G. Strickland, Chairman, presented the following report, which was adopted on motion of Dr. Strickland, seconded by Dr. A. T. McCormack, Kentucky, and carried.

On June 11 Dr. A. T. McCormack, Kentucky, introduced a resolution praising the American Museum of Health at the New York World's Fair, complimenting the city administration and suggesting the promotion of similar museums in other parts of the country.

Your reference committee recommends the adoption of that resolution.

Respectfully submitted,

CHARLES G. STRICKLAND, Chairman.
HOWARD L. SNYDER.
HENRY C. MACATEE.
FREDERIC E. SONDLIN.
HUBERT L. HAYANS.

Report of Reference Committee on Legislation and Public Relations

Dr. F. S. Crockett, Chairman, presented the following report, which was adopted section by section and as a whole, on motions of Dr. Crockett, duly seconded and carried:

REPORT OF COMMITTEE ON LEGISLATIVE ACTIVITIES

The report of the Committee on Legislative Activities reflects the current trends of legislation and social pressure on the development of medical practices. Your reference committee commends the foresight of the Committee on Legislative Activities as evidenced by the early formation of measures to insure

presentation to the Subcommittee of the Senate Committee on Education and Labor of full and adequate factual data pertinent to the Wagner bill. In the opinion of your reference committee, this activity on the part of the Committee on Legislative Activities amply justifies the wisdom of the House of Delegates in its creation. Your reference committee also commends the spirit of those physicians named in the report, who added their special skills and knowledge in testimony before the Senate subcommittee.

The federal program for the building of Veterans' hospitals beyond the apparent need of the moment has been a matter of some concern to the medical profession in the past. Much was accomplished by the Committee on Legislative Activities with the help of the American Legion in emphasizing the element of need as the determining factor in hospital construction.

Recent trends in social thinking are reflected by the proposal of the President of the United States to build hospitals with federal money in communities where the need exists. Federal measures of this type for the civilian population make more difficult our efforts to check or modify hospital construction for the care of other groups.

The Committee on Legislative Activities has followed the development of the Farm Security Administration plan for medical care of clients. This is obviously an effort to use the insurance principle to pay for medical service. It has been successful in securing cooperation of component county medical societies in many communities and, while acknowledged as experimental in scope, the experience seems to have contributed something to the solution of the medical problems of a farm group which is medically indigent.

The Committee on Legislative Activities has continued its contact with the very influential farm group, The Associated Women of the American Farm Bureau Federation. Your reference committee commends the committee for its continued effort to develop, in cooperation with this farm group, satisfactory improvements in rural medical care.

Your reference committee commends the efforts of the Committee on Legislative Activities in keeping constantly informed of legislative measures before the Congress. The profession has been unusually fortunate in having one of Dr. Cary's experience and ability to guard the ramparts of medicine's citadel against the blitzkrieg of external foes and the subversive activities of fifth columnists within our ranks.

Your reference committee, in closing, wishes to emphasize the expression of the Committee on Legislative Activities concerning the loss suffered by the profession in the death of Dr. C. B. Wright. Dr. Wright was one of those whose vision helped guide this House of Delegates in the creation of the Committee on Legislative Activities, as a member of which he served long and faithfully. The tribute of the Committee on Legislative Activities to his intelligence, mental honesty and faithfulness to his professional ideals should be reemphasized by inclusion in this report.

REPORT OF COMMITTEE TO CONFER AND CONSULT WITH PROPER FEDERAL REPRESENTATIVES

The report of Dr. Irvin Abell, Chairman of the Committee to Confer and Consult with Proper Federal Representatives, which was appointed by the House of Delegates at its special session in 1938, outlined certain principles which your reference committee wishes to reaffirm.

Since the report was prepared by Dr. Abell, a bill has been introduced in Congress and, with certain changes, passed unanimously by the Senate.

Your reference committee believes that the program for hospital construction originally suggested by President Roosevelt contained worthy objectives. This program, as contemplated in the Wagner-George bill, was reported to the Senate by the Committee on Education and Labor, which stated in part: "Your committee recognizes that the program proposed under S. 3230 is only a step toward the solution of the health problems which have received its attention for the past several months, and would provide increased hospital facilities only in localities where the need is most desperate. It is felt, however, that this measure should be immediately adopted because of the pressing necessity of the situation, and your committee has

designed the measure so it will fit into a more comprehensive program which is being formulated by your committee."

In further support of this bill, Senator Murray, chairman of the subcommittee of the Senate Committee on Education and Labor that conducted hearings on the bill, stated in part on the floor of the Senate at the time this bill was presented for consideration: "Mr. President, in conclusion I should like again to say that this proposed hospital construction program should be recognized simply as a very important step toward the solution of the national health problems which have received the committee's attention for many months. It will provide increased hospital facilities only in localities where the need is most desperate. The proposed legislation has been so designed that it can fit into a more comprehensive program which in the future may be considered desirable."

Your reference committee finds itself in harmony with the action of the House of Delegates in approving that portion of the address of President-Elect Van Etten in which he referred to the plan of the President of the United States for the construction of small hospitals with the use of federal funds in communities where actual need can be shown, provided there is strict adherence to the President's plan for construction only where actual need can be shown and then only where local governmental units can demonstrate their ability and willingness to maintain the institutions when built. Your reference committee believes that it is necessary for the medical profession to emphasize to local governmental bodies the cost of maintenance of the institutions which may be constructed under this proposed legislation.

Your reference committee appreciates the fact that this bill is in the nature of an experimental venture; it would be unfortunate if it included any provisions that might possibly militate against an adequate appraisal of its fundamental merits. It seems to your reference committee that there are several features of the bill as passed by the Senate that will create some difficulty in making that appraisal.

In the first place, the President, in his special message to Congress, contemplated only the provision of hospital beds as distinguished from medical care. The bill as passed by the Senate goes beyond this by defining a hospital to include health, diagnostic and treatment centers. Under this definition such centers may be created entirely apart from hospitals as they are generally known.

In the second place, the bill as passed requires that projects to be constructed from the appropriation made available during the first year of its operation shall be approved by the National Hospital Advisory Council. Projects to be constructed during the succeeding five year period are not subject to the approval of that council. If the approval of the council is desirable for projects to be constructed during the first year, such approval is desirable also for projects to be constructed during the succeeding five years.

In the third place, an amendment to the bill, offered by Senator Murray of Montana on the floor of the Senate, was unanimously adopted, contemplating osteopathic representation on the council. Your reference committee believes that this reference to osteopathic representation on the council is entirely unwarranted and should be eliminated from the bill.

In the fourth place, discussion has arisen with respect to the method provided in the bill for the appointment of members of the council. It has been suggested that the council should be appointed by the President.

The bill is now pending in the House Committee on Interstate and Foreign Commerce and will be given further consideration by that committee. In order that the features of the bill just discussed may be corrected, your reference committee recommends that the Bureau of Legal Medicine and Legislation be urged to continue appropriate steps to this end.

Your reference committee urges that each constituent state medical association create a special committee to act in an advisory capacity to the executive officer of the state health department on any hospital construction projects that may be contemplated under the provisions of the pending legislation.

Your reference committee believes that the House of Delegates should show its appreciation of the services of the special committee appointed by the Speaker, of the officers of the Association and of the headquarters personnel that met with the President in connection with this hospital construction pro-

gram, and recommends that this special committee be continued, to be on call by the President of the United States or other governmental authorities.

Respectfully submitted.

F. S. CROCKETT, Chairman.
CHARLES J. WHALEN.
L. G. CHRISTIAN.
WINGATE M. JOHNSON.
THOMAS A. MCGOLDRICK.

Report of Reference Committee on Executive Session

Dr. Edward R. Cuniffe, Chairman, presented the following report, which was adopted on motion of Dr. Cuniffe, seconded by Dr. E. G. Wood, Tennessee, and carried:

Information has come to the members of this reference committee that it is expedient to change one part of the resolution offered by the Board of Trustees and adopted by the House of Delegates last Tuesday. The ex officio members of the designated committee reside in New York and Chicago, leaving but seven members for the rest of this great country. Information from military authorities indicates that three additional members would be necessary properly to organize the United States. Therefore your reference committee recommends that that part of the resolution be changed to read as follows:

"Resolved, That the House of Delegates authorize the Board of Trustees to create a Committee on Medical Preparedness to consist of ten members of this House, with the President of the Association, the Chairman of the Board of Trustees, the Secretary of the Association, the Secretary of the Board of Trustees, and the Editor as ex officio members."

EDWARD R. CUNIFFE, Chairman.
JAMES R. McVAY.
J. DUFFY HANCOCK.

Report of Reference Committee on Hygiene and Public Health

Dr. E. S. Hamilton, Chairman, presented the following report, which was tabled after discussion, on motion of Dr. Arthur J. Bedell, Section on Ophthalmology, seconded by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, and carried:

Your reference committee has reviewed the resolutions presented by the Missouri State Medical Association and wishes to report that the facts suggesting the introduction of these resolutions have not been explained and also that it has been unable to obtain the report of the special committee appointed by the Board of Trustees at the request of the House of Delegates at the 1939 session. It has waited for a communication from the Section on Ophthalmology with regard to this problem. Not having received it, your reference committee recommends that these resolutions be returned to the Board of Trustees for further information.

Your reference committee recommends that these resolutions be referred to the Board of Trustees and that the report of the committee as a whole be accepted.

Respectfully submitted.

E. S. HAMILTON, Chairman.
FELIX J. UNDERWOOD.
KARL S. J. HOHLEN.
CLYDE L. CUMMER.
W. F. DRAPER.

Resolution from the Section on Ophthalmology Requesting Appointment of a Committee on Conservation of Vision and Prevention of Blindness

Dr. Arthur J. Bedell, Section on Ophthalmology, presented the following resolution, which was adopted on motion of Dr. Bedell, seconded by Dr. Ivan Fawcett, West Virginia, and carried:

WHEREAS, One state delegation has presented resolutions to the House of Delegates; and

WHEREAS, Other state medical associations have sent their recommendations direct to the section officers; and

WHEREAS, The Section on Ophthalmology has been fully conscious of the needs for a new appraisal of the entire field of conservation of vision and prevention of blindness; and

WHEREAS, The House of Delegates is the legislative body of the American Medical Association; therefore be it

Resolved, That the Section on Ophthalmology does hereby petition the House of Delegates to approve the appointment of a Committee on Conservation of Vision and Prevention of Blindness, this committee to consist of five members of the Section on Ophthalmology who shall be responsible to the Board of Trustees; to collect data showing the status of conservation measures in each state, and to act as a clearing house for all information

mation regarding the conservation of vision and prevention of blindness but not to make any pronouncement on policy or establish any rules until such are approved by the Section on Ophthalmology and the Board of Trustees.

Resolution from the Section on Pathology and Physiology Opposing the Formation of a Section on Experimental Medicine by Combination of Two Existing Sections

Dr. L. W. Larson, Section on Pathology and Physiology, presented the following resolution, which was adopted on motion of Dr. Larson, seconded by Dr. Wright Clarkson, Virginia, and carried:

WHEREAS, The suggestion has been made to the Council on Scientific Assembly of the American Medical Association that the Section on Pathology and Physiology be combined with the Section on Pharmacology and Therapeutics to form a Section on Experimental Medicine; be it

Resolved, That the Section on Pathology and Physiology is opposed to such a change.

Resolution from the Section on Nervous and Mental Diseases Endorsing the Formation of a Central Neuropsychiatric Institute to Be Established in the United States Public Health Service

Dr. Henry R. Viets, Section on Nervous and Mental Diseases, presented the following resolution:

WHEREAS, The Surgeon General of the United States Public Health Service in his Annual Report for 1939 stated that "Mental and nervous diseases and epilepsy together represent the largest unsolved problem in medicine. Hospitals caring for mental disease have on their books more than 500,000 patients, and more than 117,000 additional patients are cared for in hospitals for mental defectives and epileptics. These figures represent only an undetermined fraction of the total problem of mental and nervous diseases and epilepsy. Millions of dollars are spent each year for the care and treatment of such patients; but very little is expended for fundamental research which might lead to a measurable control of the problem through discoveries pointing the way to effective measures of prevention and cure." In order to remedy this condition, the Surgeon General recommended the establishment in the Public Health Service of an institute for the study of these diseases; and

WHEREAS, The Section on Nervous and Mental Diseases of the American Medical Association appreciates the magnitude of this problem and deprecates the paucity of research efforts directed toward the solution of it, and the treatment of patients in mental hospitals alone costs various governmental agencies approximately \$230,000,000 a year, and yet scarcely 1 per cent of this fund is devoted to research that might eventually lead to an appreciable reduction of the financial burden and the relief of many individuals and families of suffering and distress; therefore be it

Resolved, That the Section on Nervous and Mental Diseases of the American Medical Association go on record as endorsing a Central Neuropsychiatric Institute to be established in the Public Health Service to carry on research in nervous and mental diseases and that this institute also have at its disposal funds to be allotted to competent groups throughout the country approved by a National Neuropsychiatric Advisory Council to carry on research projects in these diseases.

Such action by this section should be transmitted to the Surgeon General of the United States Public Health Service at Washington, D. C.

It was moved by Dr. Viets and seconded by Dr. Henry A. Luce, Michigan, that this resolution be adopted. The motion was lost and the resolution was not adopted.

Resolution on Training in Legal Psychiatry, from the Section on Nervous and Mental Diseases

Dr. Henry R. Viets, Section on Nervous and Mental Diseases, presented the following resolution, which, after discussion, was tabled on motion of Dr. W. E. Kittler, Illinois, seconded by Dr. John Z. Brown, Utah, and carried:

WHEREAS, The American Medical Association has recognized the need for psychiatric participation in the disposition of criminal offenders, exemplified in its endorsement of the resolution of the American Bar Association, 1929, advocating such psychiatric participation, to wit:

Resolved: 1. That there be available to every criminal and juvenile court a psychiatric service to assist the court in the disposition of offenders.

2. That no criminal be sentenced for any felony in any case in which the judge has any discretion as to the sentence until there has been filed, as part of the record, a psychiatric report.

3. That there be a psychiatric service available to every penal and correctional institution.

4. That there be a psychiatric report on every prisoner convicted of a felony before he is released.

5. That there be established in each state a complete system of administrative transfer and parole, and that there be no decision for or against any parole or any transfer from one institution to another without a psychiatric report; and

WHEREAS, The Pennsylvania Plan sponsored by the Joint Medical-Legal Committee of the Philadelphia County Medical Society and the Philadelphia Bar Association, published as a report, March 1940, provides for the creation of an educational program combining the facilities of both an institution of learning and the state and local penal institutions

and courts, enabling qualified physicians endowed by fellowships to receive adequate training in legal psychiatry; and

WHEREAS, The Pennsylvania Plan represents the most practical step in the fulfillment of the 1929 resolution of the American Bar Association and the American Medical Association, and would create an important educational service hitherto neglected in the field of mental medicine; and

WHEREAS, The Pennsylvania Plan has received the full approval by the American Psychiatric Association, ninety-sixth annual session, Cincinnati, 1940, and by other learned bodies; therefore be it

Resolved, That the Section on Nervous and Mental Diseases of the American Medical Association go on record as endorsing the Pennsylvania Plan.

Report of Reference Committee on Reapportionment of Delegates

Dr. A. T. McCormack, Chairman, presented the following report, which was adopted on motion of Dr. McCormack, seconded by Dr. Harvey F. Garrison, Mississippi, and carried:

Reapportionment of Delegates

Present Number of Delegates		Number of Members 4/1/40	Number of Delegates Under 930 as a Basis of Apportionment
2	Alabama.....	1,501	2
1	Arizona.....	360	1
2	Arkansas.....	1,053	2
7	California.....	6,542	8
2	Colorado.....	1,165	2
2	Connecticut.....	1,701	2
1	Delaware.....	227	1
1	District of Columbia.....	883	1
2	Florida.....	1,331	2
3	Georgia.....	1,904	3
1	Idaho.....	280	1
9	Illinois.....	7,873	9
4	Indiana.....	3,237	4
3	Iowa.....	2,429	3
2	Kansas.....	1,525	2
3	Kentucky.....	1,893	3
2	Louisiana.....	1,531	2
1	Maine.....	729	1
2	Maryland.....	1,400	2
7	Massachusetts.....	5,283	6
5	Michigan.....	4,262	5
3	Minnesota.....	2,795	3
2	Mississippi.....	1,127	2
4	Missouri.....	3,260	4
1	Montana.....	410	1
2	Nebraska.....	1,161	2
1	Nevada.....	113	1
1	New Hampshire.....	506	1
4	New Jersey.....	3,784	5
1	New Mexico.....	263	1
19	New York.....	16,986	19
2	North Carolina.....	1,867	3
1	North Dakota.....	407	1
7	Ohio.....	6,490	7
2	Oklahoma.....	1,466	2
1	Oregon.....	839	1
11	Pennsylvania.....	9,348	11
1	Rhode Island.....	500	1
2	South Carolina.....	996	2
1	South Dakota.....	325	1
3	Tennessee.....	1,781	3
6	Texas.....	4,422	6
1	Utah.....	406	1
1	Vermont.....	384	1
3	Virginia.....	1,781	3
2	Washington.....	1,515	2
2	West Virginia.....	1,263	2
3	Wisconsin.....	2,544	3
1	Wyoming.....	171	1
1	Alaska.....	43	1
1	.....	284	1
1	.....	117	1
2	.....	1,120	2
1	.....	364	1
1	.....	.....	1
1	.....	.....	1
1	.....	.....	1
15	.....	.....	16
174			175

The total voting membership of the House of Delegates shall not exceed 175.

Your reference committee has made a careful study of the membership and recommends that the basis of the apportionment of delegates for the next three years be one delegate for each 930 members or fraction thereof, each constituent association being represented by at least one delegate irrespective of the number of members.

The By-Laws specifically provide that the total membership of the House of Delegates shall not exceed 175. The total membership of the Association on April 1, 1940, as recorded in the office of the Secretary, was 116,266.

The House of Delegates has added one section to the Scientific Assembly, which is entitled to one delegate.

On the basis of one delegate for each 930 members or fraction thereof, the total membership of the House will be 175, which is one more than the present membership of the House. On this basis California, Minnesota, New Jersey and North Carolina will each gain one delegate, while Massachusetts, Tennessee, Texas and Virginia will each lose one delegate.

Your reference committee further recommends that the Judicial Council be instructed to study the advisability of an amendment to the By-Laws that will provide that no section shall be represented by a delegate after the next reapportionment which has had an average membership registration of less than 200 over the three year period preceding reapportionment.

A. T. McCORMACK, Chairman.
H. B. EVERETT.
WILLIAM A. ELLINGWOOD.
H. H. SHOULDERS.
OLIN WEST.

Messages from National Medical Association

On request of the Speaker, the Secretary read the following telegrams, the first addressed to Dr. Nathan B. Van Etten, President of the American Medical Association, and the second addressed to Dr. H. H. Shoulders, Speaker of the House of Delegates:

Government's request for mobilization of medical men by county societies, may I not ask you to include Negro physicians for mutual cooperation. Dr. Roscoe C. Giles, chairman, Liaison Committee, National Medical Association, named to confer with you. Shall appreciate any courtesy shown him.

A. W. DUMAS SR., M.D., President, National Medical Association. Dr. A. W. Dumas, President, National Medical Association, has instructed me to confer with American Medical Association with reference to inclusion in proposed program for national defense and to pledge our wholehearted support of program. Will be in Surgical Section.

ROS COE C. GILES.

The Speaker referred these telegrams to the Chairman of the Committee on Medical Preparedness that is to be appointed.

Message from Puerto Rico

At the request of Dr. Manuel de la Pila, Puerto Rico, the House instructed the Secretary to read a message signed by Dr. Pila, as follows:

As representative of Puerto Rico in the House of Delegates and voicing the spirit of the medical profession of our island, I desire to express our pride and happiness in having joined our destiny in history to that of this great democracy.

In these times when our thoughts, emotions and feelings are being so vitally affected, the medical profession of Puerto Rico wishes to make a solemn declaration. Even as Puerto Rico is today the Gibraltar of America, so does the medical profession of Puerto Rico desire to be the advance fortress in the defense of the ideals and traditions of this great country.

MANUEL DE LA PILA.

Committee on Medical Preparedness

Dr. H. H. Shoulders, Speaker, in accordance with the action of the House of Delegates on the Resolutions Authorizing Organization of a Committee on Medical Preparedness, appointed the following named ten members of the House to serve with the five ex officio members named in the resolutions: Irvin Abell, Louisville, Ky., Chairman; Stanley H. Osborn, Hartford, Conn.; Walter G. Phippen, Salem, Mass.; Harvey B. Stone, Baltimore; James E. Paullin, Atlanta, Ga.; Fred W. Rankin, Lexington, Ky.; Roy W. Fouts, Omaha; Samuel E. Thompson, Kerrville, Texas; Charles A. Dukes, Oakland, Calif.; John H. O'Shea, Spokane, Wash.

ELECTION OF OFFICERS

The Speaker declared the next order of business to be the election of officers.

Election of President-Elect

Dr. David D. Scannell, in behalf of the Massachusetts delegation, nominated for President-Elect Dr. Frank H. Lahey, Boston, and the nomination was seconded by Drs. James E. Paullin, Section on Practice of Medicine; John H. O'Shea, Washington; A. A. Walker, Alabama; E. G. Wood, Tennessee, and many others.

Dr. A. T. McCormack moved that the nominations be closed, that the rules be suspended and that the Secretary be instructed to cast the ballot of the House for Dr. Frank H. Lahey as

President-Elect. The motion was seconded by several and carried.

The Secretary cast the ballot of the House for Dr. Frank H. Lahey, Boston, for President-Elect of the American Medical Association, and the Speaker declared Dr. Lahey so elected.

Election of Vice President

Dr. Ben R. McClellan, Ohio, placed in nomination for Vice President Dr. Parke G. Smith, Cincinnati, and the nomination was seconded by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, and Dr. Barney J. Hein, Ohio.

The nominations were closed on motion of Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, seconded by Dr. George Gray Ward, Section on Obstetrics and Gynecology, and Dr. Felix J. Underwood, Mississippi, and carried.

Dr. Parke G. Smith, being the only nominee for Vice President, and receiving the unanimous vote of the House for that office, was declared by the Speaker to be unanimously elected Vice President of the American Medical Association for the ensuing year.

Election of Secretary

Dr. William R. Brooksher, Arkansas, nominated Dr. Olin West, Chicago, to succeed himself as Secretary, and the nomination was seconded by Drs. Harvey F. Garrison, Mississippi; James Q. Graves, Louisiana; E. G. Wood, Tennessee; Felix J. Underwood, Mississippi; William Weston, Section on Pediatrics; R. E. Schlueter, Missouri; Charles A. Dukes, California; Peter Irving, New York; J. Newton Hunsberger, Pennsylvania, and others.

Dr. T. K. Gruber, Michigan, moved that the nominations be closed, and the motion was seconded by Dr. Felix J. Underwood, Mississippi, and carried unanimously.

After the vote of the House had been cast, the Speaker declared Dr. Olin West formally elected to succeed himself as Secretary of the American Medical Association for the ensuing year.

Election of Treasurer

Dr. Arthur W. Booth, Chairman of the Board of Trustees, stated that the Board of Trustees authorized him to put in nomination for the office of Treasurer the name of Dr. Herman L. Kretschmer, Chicago, to succeed himself.

Dr. Walter E. Vest, West Virginia, moved that the nomination be confirmed, and the motion was seconded by Dr. George W. Kosmak, New York, and carried, and the Speaker declared Dr. Herman L. Kretschmer elected as Treasurer of the American Medical Association for the ensuing year.

Election of Speaker of the House of Delegates

Dr. R. W. Fouts, Vice Speaker, took the Chair and stated that the next order of business was the election of a Speaker of the House of Delegates.

Dr. Harvey F. Garrison, Mississippi, nominated Dr. Harrison H. Shoulders, Nashville, Tenn., to succeed himself as Speaker of the House of Delegates, and the nomination was seconded by Drs. H. B. Everett, Tennessee; William H. Myers, Georgia; William Weston, Section on Pediatrics; R. E. Schlueter, Missouri; Peter Irving, New York, and James Q. Graves, Louisiana.

Dr. H. B. Everett, Tennessee, moved that the nominations be closed, and the motion was seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried unanimously.

On motion of Dr. John Z. Brown, Utah, seconded by Dr. H. B. Everett, Tennessee, and carried unanimously, Dr. Harrison H. Shoulders was elected Speaker of the House of Delegates for the ensuing year and the Vice Speaker declared him so elected.

Address of President-Elect Frank H. Lahey

The Speaker resumed the Chair, after which Dr. Arthur T. McCormack, Kentucky, presented to the House of Delegates the President-Elect, Dr. Frank H. Lahey, Boston, who addressed the House as follows:

President Van Etten, Mr. Speaker of the House, Delegates and Friends:

I am certain that my closest friend and my most severe critic would not believe me, after my experience as a speaker, if I said that I am at a loss for words. I hesitate to inject at this time even a trace of facetiousness, but the late Dr. Coffey once

said to Mrs. Lahey that all Irishmen if awakened from a sound sleep would wake up talking. I really feel certain that anything that I say at this moment will be inadequate. I realize fully that there is but little personal element to this, and that to be promoted to the position of President-Elect of the parent medical association, representing, as it does, all of American medicine, is one of the greatest honors that can come to a man. I accept it as an instrument and not as an individual.

I see myself promoted to this position largely as an institution involved in postgraduate teaching, and I am certain that if you feel I have earned this honor it is because of this.

I realize fully the magnitude of Dr. Van Etten's undertaking, and I equally realize what the magnitude of the undertaking may be for all of us in these times, which can be characterized as little less than an emergency. I feel very strongly that if we view these times as an emergency we make only the mistake of exaggeration, for which the penalty is little, but if we view them as less than an emergency we make the mistake of minimizing them, for which the penalty may be tremendous.

I hope as we approach this very serious problem (this will not be a speech) that we can smooth out and eliminate at least in terms of a truce or a moratorium the difficulties which have beset medicine, at least until we can face and meet this emergency and overcome some of these difficulties which are so apparent at the present time. It would be wrong for me not to express my personal opinion that we can so overcome them and so harmoniously deal with the situation that other lines of endeavor will be prompted to emulate us, not the least important of which is government. Thank you very much.

Election of Vice Speaker of the House of Delegates

Dr. James Q. Graves, Louisiana, nominated Dr. R. W. Fouts, Omaha, to succeed himself as Vice Speaker of the House of Delegates and the nomination was seconded by Dr. H. B. Everett, Tennessee.

Dr. William Weston, Section on Pediatrics, moved that the nominations be closed, and the motion was seconded by Dr. J. Newton Hunsberger, Pennsylvania, and carried unanimously.

After the vote of the House had been cast, the Speaker declared Dr. R. W. Fouts formally elected to succeed himself as Vice Speaker of the House of Delegates for the ensuing year.

Election of Trustees

The Speaker declared the next order of business to be the election of two Trustees, each to serve five years, to succeed Drs. Ralph A. Fenton, Portland, Ore., and James R. Bloss, Huntington, W. Va.

Dr. John H. Fitzgibbon, Oregon, nominated Dr. Ralph A. Fenton, Portland, Ore., to succeed himself as Trustee, and the nomination was seconded by Dr. George W. Kosmak, New York; Dr. Burt R. Shurly, Section on Laryngology, Otology and Rhinology; Dr. Harvey F. Garrison, Mississippi; Dr. E. H. Cary, Texas; Dr. G. Henry Mundt, Illinois; Dr. Charles A. Dukes, California, and Dr. Wells P. Eagleton, New Jersey.

Dr. John Z. Brown, Utah, moved that the nominations be closed, and the motion was seconded by Dr. James E. Paullin, Section on Practice of Medicine, and Dr. R. E. Schluter, Missouri, and carried.

After the vote of the House had been cast, the Speaker declared Dr. Ralph A. Fenton duly elected Trustee for a term of five years to succeed himself.

Dr. Walter E. Vest, West Virginia, placed in nomination the name of Dr. James R. Bloss, Huntington, W. Va., to succeed himself as Trustee for a term of five years and the nomination was seconded by Dr. A. T. McCormack, Kentucky; Dr. George W. Kosmak, New York; Dr. Harvey F. Garrison, Mississippi; Dr. William Weston, Section on Pediatrics; Dr. George Gray Ward, Section on Obstetrics and Gynecology; Dr. H. B. Everett, Tennessee; Dr. E. G. Wood, Tennessee; Dr. Wells P. Eagleton, New Jersey; Dr. George P. Johnston, Wyoming, and Dr. Samuel P. Mengel, Pennsylvania.

On motion of Dr. Howard L. Snyder, Kansas, seconded by Dr. James E. Paullin, Section on Practice of Medicine, and carried unanimously, the nominations were closed and, after the vote of the House had been cast, the Speaker declared

Dr. James R. Bloss, Huntington, W. Va., elected to succeed himself as a Trustee for a term of five years.

The Speaker announced that there was another vacancy on the Board of Trustees, created by the death of Dr. Charles B. Wright, for a term ending in 1943, and Dr. Francis J. Savage, Minnesota, placed in nomination the name of Dr. William F. Braasch, Rochester, Minn. The nomination was seconded by Drs. Charles W. Roberts, on behalf of the Georgia delegation; Harvey F. Garrison, Mississippi; Harvey B. Stone, Maryland; James C. Sargent, on behalf of the Wisconsin delegation; H. B. Everett, Tennessee, and H. C. Bumpus, Section on Urology.

Dr. Arthur J. Bedell, Section on Ophthalmology, moved that the nominations be closed, and the motion was seconded by Dr. Harvey F. Garrison, Mississippi, and unanimously carried.

The Speaker, after the vote of the House had been cast, declared Dr. William F. Braasch elected to succeed the late Dr. Charles B. Wright for the unexpired term ending in 1943.

Nominations for Standing Committees

Dr. Nathan B. Van Etten, President, submitted the following nominations for standing committees:

Dr. George Edward Follansbee, Cleveland, to succeed himself on the Judicial Council, for a term ending in 1945.

Dr. A. A. Walker, Birmingham, Ala., to succeed himself on the Council on Scientific Assembly, for a term ending in 1945.

Dr. Arthur T. McCormack, Kentucky, moved that the nominations be confirmed and the nominees be elected to their respective positions, and the motion was seconded by Dr. Clyde L. Cummer, Section on Dermatology and Syphilology, and carried unanimously.

Dr. Arthur W. Booth, Chairman, stated that the Board of Trustees desired to place in nomination for member of the Council on Medical Education and Hospitals the name of Dr. John H. Musser, New Orleans, for a term ending in 1947. On motion of Dr. James Q. Graves, Louisiana, seconded by Dr. Arthur J. Bedell, Section on Ophthalmology, and carried unanimously, the nomination was confirmed.

Dr. Arthur W. Booth, Chairman of the Board of Trustees, called attention to the fact that the President-Elect was a member of the Council on Medical Education and Hospitals and desired at this time the privilege of retiring, so that there would be another vacancy on that Council.

Dr. Frank H. Lahey, President-Elect submitted his resignation as a member of the Council on Medical Education and Hospitals, which was accepted on motion of Dr. Felix J. Underwood, Mississippi, seconded by Dr. Joseph F. Smith, Wisconsin, and carried. Dr. Arthur W. Booth, Chairman, then stated that the Board of Trustees desired to place in nomination Dr. Herman G. Weiskotten, Syracuse, N. Y., to fill the unexpired term of Dr. Lahey ending in 1945.

The nomination was confirmed, on motion of Dr. George W. Kosmak, New York, seconded by Dr. James E. Paullin, Section on Practice of Medicine, and carried.

Election of Affiliate and Associate Fellows

The Secretary presented the following nominations for Affiliate and Associate Fellowship, which, on motions duly seconded and carried, were confirmed by the House:

NOMINATIONS FOR AFFILIATE FELLOWSHIP APPROVED BY THE COUNCIL ON SCIENTIFIC ASSEMBLY

Deck, Leroy, St. Joseph, Mo.	Laurester, Herschel W., Nevada, Mo.
Brothhead, George L., New York.	Lanning, J. H., Kansas City, Mo.
Cheney, William E., Boston.	Lederman, M. D., New York.
Clarke, J. Frederic, Fairfield, Iowa.	MacCarthy, F. H., Laconia, N. H.
Davis, Charles E., Honolulu.	May, James V., Watertown, Mass.
Dawson, Lewis R., Seattle.	Mishoff, I. D., Milwaukee.
DeLamater, Hasbrouck, St. Joseph, Mo.	Robison, John A., Chicago.
Durkee, John W., Morristown, N. J.	Russell, James M., Monett, Mo.
Fensterer, G. A., Garden City, N. J.	Schladermundt, Charles A., Buffalo.
Fleming, Ernest William, Los Angeles.	Sheets, Vaughn L., Chicago.
Frazier, J. M., Helton, Texas.	Simpson, James Y., Houston, Texas.
Gilbert, William H., West Los Angeles, Calif.	Spitz, Louis, Philadelphia.
Halford, George C., Abilene, Mich.	Starbird, E. P., Boston.
Hays, T. A., Huron City, Ind.	Stewart, Edward S., Plainfield, Ill.
Huntston, Charles E., Chicago.	Thompson, William H., Winteret, Iowa.
Johnson, J. R., Syracuse, N. Y.	Walsh, James J., New York.
Kober, A. F., Charles City, Iowa.	Wilcox, DeWitt G., Newton Center, Mass.
Winfield, Morris, Philadelphia.	

NOMINATIONS OF AMERICAN MEDICAL MISSIONARIES FOR
ASSOCIATE FELLOWSHIP APPROVED BY THE
JUDICIAL COUNCIL

Gass, Herbert Hermann, Baitalpur, India.
Hiscox, Elizabeth J., Nuzvid, South India.
Karcher, James F., Canton, China.
Lawson, Chester W., Hong Kong, China.
Nute, William L., Talas, Turkey.
Wylie, J. Herman, Peiping, China.

NOMINATIONS FOR ASSOCIATE FELLOWSHIP APPROVED
BY THE SECTIONS INDICATED

PHARMACOLOGY AND THERAPEUTICS

Edmunds, C. W., Ann Arbor, Mich.

PATHOLOGY AND PHYSIOLOGY

Maison, George L., St. Louis.
Wiggers, Carl J., Cleveland.

NERVOUS AND MENTAL DISEASES

Oyerholser, Winfred, Washington, D. C.
Walker, A. Earl, Chicago.

PREVENTIVE AND INDUSTRIAL MEDICINE AND PUBLIC
HEALTH

Corwin, Edward Henry L., New York.

Remarks by Dr. Irvin Abell

Dr. Irvin Abell, Chairman of the Committee on Medical Preparedness, addressed the House as follows:

Mr. Speaker and Members of the House:

Your action today places at the disposal of the government the entire facilities of the American Medical Association in the development of its preparedness program. The members of this Association have never been lacking in patriotism. I need but to recall to your attention that during World War No. 1 more than 30,000 of our members served with the armed forces of the United States and many thousands more served as chairmen of boards, members of boards, examiners and in various other capacities. Since the organization of the American Medical Association there has never been an emergency confronting our government in which its facilities have not wholeheartedly, unreservedly, been placed at the disposal of the government.

The duties of this committee have not been definitely defined, though I am sure that in our efforts to find out how we can best serve you, in consultation with the members of the organization itself, in consultation with the Surgeon General of the Army and the Surgeon General of the Navy, ways and means will be immediately developed, serving thus as your instrument to carry into fruition your desires and your wishes.

I happen to have in my hand an information card that was used by the Canadian Medical Association, and it is one that is easily applicable to our own membership, so that in sending such cards to each and every member of the profession in the country we can have some accurate information as to their training, their age, their qualifications and the type of work in which they are engaged. The Canadian Medical Association asked its members these questions, which I should like to read to you.

In the national emergency I am prepared to offer my services:

1. For whole-time service abroad.
2. For whole-time service in any part of the continent.
3. For whole-time service in my own locality.
4. For part-time service in my own locality.
5. I am unable to offer my services in any military capacity.

I am sure you will be interested in knowing that of 8,553 members of that association more than 90 per cent placed their services at the disposal of the Canadian government, there being but a few more than 800 who declined to take any part, for various reasons, in the program of the government.

I should like very much if the members of your committee would meet at 4:30 for a preliminary meeting, and I assure the House of Delegates that your committee will immediately go to work and as far as lies within its capacity it will endeavor to bring to the people of this country and to the government your wishes and your orders. In fact, we place our services and our facilities at the disposal of the government for its use.

Place of 1943 Annual Session

Dr. Arthur W. Booth, Chairman of the Board of Trustees, presented the following report:

The Board of Trustees wishes to report that invitations for the 1943 annual session of the Association have been received from St. Louis, San Francisco and Detroit; that St. Louis and San Francisco are qualified to accommodate an annual session of this Association, and that Detroit is less well qualified for the holding of an annual session.

Dr. R. E. Schluter, Missouri, presented an invitation from the St. Louis Medical Society, the Missouri State Medical Association and the people of the city of St. Louis to meet in St. Louis in 1943.

Dr. Elbridge J. Best, California, extended an invitation from the San Francisco County Medical Society, the California Medical Association, Mayor Rossi of the city of San Francisco, President Ray Lyman Wilbur of Stanford University and President Robert G. Sproule of the University of California to meet in San Francisco in 1943.

Dr. Burt R. Shurly, Section on Laryngology, Otology, and Rhinology, extended an invitation from the Wayne County Medical Society and the Michigan State Medical Society to meet in Detroit in 1943.

The tellers spread the ballot, on request of the Speaker, and the Secretary announced that 165 delegates had been reported present and that 142 votes had been cast, of which San Francisco received 65, St. Louis 46 and Detroit 31.

The Vice Speaker, Dr. R. W. Fouts, took the Chair and announced that, as no city had received a majority of votes, another ballot was necessary and that under the custom of the House the place receiving the lowest number should be eliminated.

The Secretary announced that the result of the second ballot was that, of 144 votes cast, San Francisco received 94 and St. Louis 50.

The Speaker resumed the Chair and declared that the House of Delegates had selected San Francisco in which to hold the 1943 annual session of the American Medical Association.

Resolution Expressing Appreciation

Dr. Arthur W. Booth, Chairman, Board of Trustees, presented the following resolution, which, on motion of Dr. Arthur T. McCormack, Kentucky, seconded by Dr. John Z. Brown, Utah, and carried, was adopted by a rising vote:

WHEREAS, The Ninety-First Annual Session of the American Medical Association held in New York in 1940 has already exceeded in total registration 11,700, the largest number by far ever in attendance at any medical convention in the world; and

WHEREAS, The facilities for housing the membership, for their entertainment, for holding scientific sessions and for the general work of the session have been exceptional in quantity and in quality; and

WHEREAS, The opportunity for dissemination of information arising from this annual session, including the general press and periodicals, has been extraordinarily comprehensive, notwithstanding even the demands on space created by the world war; and

WHEREAS, The great radio broadcasting agencies and all of the local radio stations in the city of New York have been exceedingly generous of time in broadcasting to the city, the state and the nation the news of this annual session and have utilized their facilities also for health education to the public; and

WHEREAS, The technical and scientific exhibits, even though presented under some difficulties, have attracted thousands of physicians and are larger in quantity and superior in quality to any such expositions previously held; therefore be it

Resolved, That the House of Delegates of the American Medical Association expresses its appreciation specifically to the county and state medical societies of New York, to the Chamber of Commerce, to the association of hotels, to the press, to the radio and to the citizens of New York for the magnificent cooperation and generous hospitality extended to the physicians of the country on this occasion.

Votes of Appreciation

On motion of Dr. A. A. Herold, Louisiana, seconded and carried unanimously, a rising vote of appreciation was extended to Dr. Charles Gordon Heyd, Chairman of the Local Committee on Arrangements.

A rising vote of appreciation was extended to the Speaker and the Vice Speaker of the House of Delegates.

The House of Delegates adjourned sine die at 4:05 p. m., on motion of Dr. H. B. Everett, Tennessee, duly seconded and carried.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit at the New York session was shown for the forty-second time. There were 245 exhibits in all, 199 of which were presented under the auspices of the various sections, twenty-four in the exhibit symposium on heart disease and sixteen in the educational classification. There were three special exhibits subsidized by the Board of Trustees and three groups of motion pictures presented in conjunction with the different sections. More than 850 exhibitors, demonstrators and assistants took part in the Scientific Exhibit.

The Special Exhibit on Fractures was presented for the tenth time under the auspices of a committee composed of Dr. Kellogg Speed, Chicago, chairman; Dr. Frank D. Dickson, Kansas City, Mo., and Dr. Walter Estell Lec, Philadelphia. Dr. Henry H. Ritter, New York, served as local representative. Appreciation is expressed to Major General James Magee, Surgeon General United States Army, and Colonel F. W. Weed, Headquarters, Second Corps Area, Governors Island, New York, for assistance in furnishing personnel and material for the exhibit, and to the New York Postgraduate Hospital for furnishing two nurses—Miss Helen Behan and Miss Eileen Lombard. Fifty physicians assisted with demonstrations in six booths continuously throughout the week.

The Special Exhibit on Fresh Pathology was presented after a lapse of several years. Demonstrations took place continuously throughout the week showing fresh specimens from more than a hundred necropsies. A feature of the exhibit was the projection on a screen of interesting specimens with lectures several times a day. The committee in charge of the exhibit consisted of Dr. Harrison S. Martland, Newark, N. J., chairman; Dr. Gilbert J. Dalldorf, Valhalla, N. Y., and Dr. Milton Helpert, New York.

The Special Exhibit on Lame Backs was a new feature shown for the first time this year. A group of more than fifty physicians participated actively throughout the week in presenting the demonstrations, while a group of soldiers from the United States Army took part under the auspices of the Surgeon General. The committee in charge consisted of Dr. Frank R. Ober, Boston, chairman; Dr. Carl E. Badgley, Ann Arbor, Mich.; Dr. J. Areher O'Reilly, St. Louis; Dr. Arthur Steindler, Iowa City, and Dr. Philip D. Wilson, New York.

The Exhibit Symposium on Heart Disease and on Peripheral Vascular Disease was presented with the cooperation of

the American Heart Association under the guidance of a committee composed of Dr. Thomas M. McMillan and Dr. Norman E. Freeman, Philadelphia.

The Exhibit Symposium on Nutrition was presented as part of the exhibit from the Section on Pediatrics.

Forty papers read before the various sections of the Scientific Assembly were correlated with the exhibits in the Scientific Exhibit.

The following physicians served as representatives in the Scientific Exhibit from the different sections of the Scientific Assembly:

Section on Practice of Medicine, Dr. Fred M. Smith, Iowa City.

Section on Surgery, General and Abdominal, Dr. Grover C. Penberthy, Detroit.

Section on Obstetrics and Gynecology, Dr. H. Close Hessel-tine, Chicago.

Section on Ophthalmology, Dr. Georgiana Dvorak Theobald, Oak Park, Ill.

Section on Laryngology, Otology and Rhinology, Dr. Daniel S. Cuning, New York.

Section on Pediatrics, Dr. Arthur F. Abt, Chicago.

Section on Pharmacology and Therapeutics, Dr. Wallace M. Yater, Washington, D. C.

Section on Pathology and Physiology, Dr. F. W. Konzelmann, Philadelphia.

Section on Nervous and Mental Diseases, Dr. F. P. Moersch, Rochester, Minn.

Section on Dermatology and Syphilology, Dr. Hamilton Montgomery, Rochester, Minn.

Section on Preventive and Industrial Medicine and Public Health, Dr. Paul A. Davis, Akron, Ohio.

Section on Urology, Dr. John H. Morrissey, New York.

Section on Orthopedic Surgery, Dr. Mather Cleveland, New York.

Section on Gastro-Enterology and Proctology, Dr. Sara M. Jordan, Boston.

Section on Radiology, Dr. S. W. Donaldson, Ann Arbor, Mich.

Section on Miscellaneous Topics, Session on Anesthesia, Dr. Henry S. Ruth, Merion, Pa.

REPORT OF THE COMMITTEE ON AWARDS

The Committee on Awards made the following report:

GROUP I

(Awards in Group I are made for exhibits of individual investigation, which are judged on the basis of originality and excellence of presentation.)

The GOLD MEDAL to Charles B. Huggins, Phillip Clark and W. W. Scott, University of Chicago, Chicago, for exhibit illustrating experimental benign hypertrophy of the prostate in the dog.

The SILVER MEDAL to John R. Paul and James D. Trask, Yale University School of Medicine, New Haven, Conn., for exhibit illustrating a rural epidemic of poliomyelitis; clinical and geographic features.

The BRONZE MEDAL to Charles F. Nelson and Roland C. Nelson, the Nelson Clinic, Beverly Hills, Calif., for exhibit on bone metabolism.

CERTIFICATES OF MERIT, Group I, are awarded to the following (alphabetically arranged):

E. E. Barksdale, Danville, Va., for exhibit illustrating cutaneous manifestation from tobacco with special reference to arsenical exfoliative dermatitis.

A. E. Bennett, A. R. McIntyre and A. L. Bennett, University of Nebraska College of Medicine, Omaha, for exhibit illustrating pharmacologic and clinical investigations with crude curare.

Frederick A. Gibbs, W. G. Lennox and A. M. Grass, Boston City Hospital, Boston, for exhibit illustrating recent advances in electro-encephalography.

F. W. Hartman, Roy D. McClure, J. G. Schnedorf and Victor Schelling, Henry Ford Hospital, Detroit, for exhibit illustrating anoxia as related to anesthesia: production, prevention, treatment and pathology.

Icie Macy-Hoobler, Detroit, for exhibit illustrating chemistry of growth and nutrition in childhood.

L. S. Stone and Frederick A. Wies, Yale University School of Medicine, New Haven, for exhibit illustrating return of vision in the vertebrate eye following repeated transplantations.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of Norman W. Elton, Millard Fillmore Hospital, Buffalo, on the defective scar of high cesarean section.

That of Reuben L. Kahn, Ann Arbor, Mich., on the detection of false positive reactions in serodiagnosis of syphilis.

That of W. J. MacNeal, Martha Jane Spence and Marie Wassen, New York, on experimental endocarditis induced by intravenous inoculation of *Streptococcus viridans*.

That of Frank L. Meleney and Elizabeth Spofford, New York, on chronic undermining burrowing ulcers and progressive bacterial synergistic gangrene before and after treatment with zinc peroxide.

That of Louis Schwartz, National Institute of Health, Bethesda, Md., Edward A. Oliver, Chicago, and Leon H. Warren, National Institute of Health, Bethesda, Md., on occupational leukoderma.

That of William Firth Wells, University of Pennsylvania School of Medicine, and Max B. Lurie, Henry Phipps Institute, Philadelphia, on experimental air-borne disease.

GROUP II

(Awards in Group II are made for exhibits which do not exemplify purely experimental studies and which are judged on the basis of excellence of presentation and correlation of facts.)

The GOLD MEDAL to Norman Treves, Memorial Hospital, New York, for exhibit illustrating the significance of the bleeding nipple.

The SILVER MEDAL to A. H. Logan, P. W. Brown, J. A. Bargen, H. M. Weber, L. A. Buie, H. H. Bowing, A. H. Baggenstoss, C. F. Dixon, J. deJ. Pemberton and C. W. Mayo, Mayo Clinic, Rochester, Minn., for exhibit on polyps of rectum and colon and illustrating what can be done about them.

The BRONZE MEDAL to W. H. Wright, National Institute of Health, Washington, D. C., for exhibit illustrating the public health aspects of trichinosis.

CERTIFICATES OF MERIT, Group II, are awarded to the following (alphabetically arranged):

Rhoda W. Benham and Edward D. DeLamater, Columbia University, New York, for exhibit illustrating yeastlike parasites of the skin; *Candida* (*Monilia*), *Cryptococcus*, *Pityrosporum*.

F. H. Falls, University of Illinois, and Charlotte S. Holt, Illinois State Department of Public Health, Chicago, for exhibit illustrating ectopic pregnancy.

R. K. Ghormley, E. F. Rosenberg and P. S. Hench, Mayo Clinic, Rochester, Minn., for exhibit illustrating types of rheumatic diseases.

R. K. Gilchrist, Chicago, for exhibit illustrating surgical pathologic studies of carcinoma of the rectum and colon.

S. W. Harrington, Mayo Clinic, Rochester, Minn., for exhibit illustrating carcinoma of the breast.

Arnold S. Jackson, Madison, Wis., for exhibit illustrating goiter and other diseases of the thyroid gland.

In addition, the following exhibits are deemed worthy of Honorable Mention (alphabetically arranged):

That of David I. Abramson and Fanny A. Senior, May Institute for Medical Research, Jewish Hospital, Cincinnati, for exhibit illustrating plethysmographic method for the study of blood flow and vascular responses in the extremities.

That of Alfred Angrist, Jamaica, N. Y., and Richard Grimes, Forest Hills, N. Y., for exhibit demonstrating forms of intracranial hemorrhage.

That of Joseph C. Gerneroy, Henry Ford Hospital, Detroit, for exhibit on stereoscopic photographs of the eye.

That of E. S. Gurdjian, Detroit, for exhibit illustrating surgical management and surgical pathology of acute head injury; problem of fluid intake, sedatives and narcotics.

That of Robert K. Lambert, New York, for exhibit illustrating significant structural features of the ocular circulation.

That of Irvine H. Page, K. G. Kohlstaedt, A. C. Corcoran, O. M. Helmer, P. J. Fouts and G. F. Kempf, Indianapolis City Hospital, Indianapolis, for exhibit illustrating nature of hypertension.

EDUCATIONAL CLASSIFICATION

A Special Certificate of Merit is awarded to the American Society of Anesthetists, New York, for its exhibit on anesthesiology—historical development.

SUBSIDIZED EXHIBITS

The Committee on Awards commends highly the special exhibits on fractures, fresh pathology and lame backs sponsored by the American Medical Association. The large and interested audience at these exhibits is an indication of the need for such exhibits, the care taken in their preparation and the excellence in the method of presentation.

RECOMMENDATIONS

It is recommended that increased facilities be provided for the projection of sound as well as silent pictures, if possible, and that consideration be given to awards for motion pictures as a separate feature.

It is recommended that the Educational Classification be discontinued so that a larger number of individual exhibitors may be accommodated. Certain of such organizations may still be included in the appropriate section under the name of the individual exhibitor.

COMMENTS

This year the Committee on Awards has had unusual difficulty in deciding on the awards because of the exceptionally large number of excellent exhibits.

The increasing excellence of the Scientific Exhibit speaks for the care in the selection of exhibit representatives. This should be continued in order to secure the proper correlation of the Scientific Exhibit with the Scientific Assembly, and in order thoroughly to canvass the field for the most excellent materials.

This year the space available has been adequate under the circumstances and it is hoped that in succeeding years this may continue. Other arrangements, such as ready access to the Scientific Exhibit with adequate entrances and exits, are important and conduce to the readiness with which the message will be delivered to the visiting physician. This is emphasized in view of the unanimity of opinion in medical circles that the Scientific Exhibit is the most valuable feature of the entire annual session.

The attention of the Trustees is called to the fact that, in the Scientific Exhibit, the opportunity is provided for discovering exhibits which will be suitable for traveling exhibits for the state societies.

The Committee is also impressed with the cooperation of the Committee on Scientific Exhibit of the Board of Trustees and the Advisory Committee. The unflinching help of Dr. Thomas G. Hull, Director of the Scientific Exhibit, has been an inspiration to the undersigned.

FRED D. WEIDMAN, Philadelphia, Chairman.

HOWARD M. CLUTE, Boston.

WILLIAM S. MCCANN, Rochester, N. Y.

I. C. RIGGIN, Richmond, Va.

WALTER M. SIMPSON, Dayton, Ohio.

REGISTRATION AT NEW YORK

The total registration at the New York session was 12,864. Below are summaries of the registration by sections and by states:

Registration by Sections

Practice of Medicine.....	4,338
Surgery, General and Abdominal.....	1,754
Obstetrics and Gynecology.....	864
Ophthalmology.....	601
Laryngology, Otolaryngology and Rhinology.....	737
Pediatrics.....	509
Pharmacology and Therapeutics.....	67
Pathology and Physiology.....	378
Nervous and Mental Diseases.....	409
Dermatology and Syphilology.....	422
Preventive and Industrial Medicine and Public Health.....	287
Urology.....	340
Orthopedic Surgery.....	376
Gastro-Enterology and Proctology.....	327
Radiology.....	452
Miscellaneous Topics: Session on Anesthesia.....	157
Two or more sections or no section marked.....	846
Total.....	12,864

Registration by States

Alabama.....	56	New Hampshire.....	39
Arizona.....	25	New Jersey.....	1,357
Arkansas.....	17	New Mexico.....	6
California.....	208	New York.....	5,223
Colorado.....	60	North Carolina.....	131
Connecticut.....	427	North Dakota.....	13
Delaware.....	41	Ohio.....	456
District of Columbia.....	206	Oklahoma.....	48
Florida.....	100	Oregon.....	23
Georgia.....	81	Pennsylvania.....	1,279
Idaho.....	8	Rhode Island.....	65
Illinois.....	484	South Carolina.....	57
Indiana.....	162	South Dakota.....	6
Iowa.....	70	Tennessee.....	64
Kansas.....	24	Texas.....	123
Kentucky.....	71	Utah.....	16
Louisiana.....	52	Vermont.....	21
Maine.....	32	Virginia.....	172
Maryland.....	196	Washington.....	34
Massachusetts.....	489	West Virginia.....	80
Michigan.....	243	Wisconsin.....	104
Minnesota.....	131	Wyoming.....	2
Mississippi.....	11	Miscellaneous.....	156
Missouri.....	138		
Montana.....	8		
Nebraska.....	49	Total.....	12,864

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

COLORADO

Midsummer Radiologic Conference.—The Denver Radiological Club will hold its annual midsummer radiologic conference at the Hotel Shirley Savoy, Denver, August 8-10.

Society News.—Dr. Herbert A. Black, Pueblo, discussed carcinoma of the cervix before the Otero County Medical Society at a recent meeting in La Junta.—Dr. Franklin G. Ebaugh, Denver, discussed insanity before the Fremont County Medical Society in Florence recently.—At a meeting of the Pueblo County Medical Society, Pueblo, May 21, Dr. Wilbur Lowe spoke on "Rectal Prolapse—Procidencia and Merits of Injection Treatment."

ILLINOIS

Personal.—Dr. Felix W. Sokolowski has resigned as managing officer of the Alton State Hospital, effective May 1, it is reported. He will devote all his time to private practice. Dr. Edward Ross, Chicago, became acting managing officer.

Course for Medical Officers.—A two months' postgraduate course in cardiovascular disease for medical officers of the Veterans Administration was recently given at Hines. Participating were:

Dr. Louis N. Katz, April 4, Clinical Value of the Electrocardiogram.
Dr. Emmett B. Bay, April 18, Hydraulics of the Circulation.
Dr. James G. Carr, April 25, Arteriosclerotic Heart Disease.
Dr. Andrew C. Ivy, May 2, Physiological Aspects of Hypertension.
Dr. Geza de Takats, May 16, Peripheral Vascular Disease.

Chicago

Course on Electrocardiography.—The cardiovascular department of Michael Reese Hospital announces a full time course in electrocardiography, August 19-31, under the direction of Dr. Louis N. Katz.

New Officers of Chicago Medical Society.—Dr. James P. Simonds has been named president-elect of the Chicago Medical Society and Dr. Frank F. Maple installed as president of the society. The ninetieth annual meeting and dinner of the society, June 25, was addressed by the outgoing president, Dr. Nathan S. Davis III, and by Dr. William Allen Pusey on "The First Ninety Years of the Society."

Dr. Kyes Made Professor Emeritus.—Dr. Preston Kyes, since 1918 professor of preventive medicine, School of Medicine of the University of Chicago, will become professor emeritus July 1. Dr. Kyes was born at North Jay, Maine, in 1875. He graduated at Johns Hopkins University School of Medicine, Baltimore, in 1900. He was a fellow of the Rockefeller Institute for Medical Research, New York, from 1902 to 1905; associate in the Chicago Memorial Institute for Infectious Diseases, 1904-1909, and Royal Prussian Institute of Experimental Therapy at Frankfurt-on-the-Main, Germany, 1901-1905. He has been associated with the University of Chicago since 1902.

Courses in Obstetrics and Pediatrics.—A series of one week courses in obstetrics and pediatrics will begin, July 8, at the University of Illinois College of Medicine, Chicago. Lecturers will include:

Dr. Frederick H. Falls, professor of obstetrics and gynecology, University of Illinois College of Medicine.
Dr. Edwin M. Miller, clinical professor of surgery, Rush Medical College.
Dr. Albert H. Montgomery, chief surgeon, Children's Memorial Hospital.
Dr. Joseph L. Baer, clinical professor of obstetrics and gynecology at Rush.
Dr. Francis E. Seneat, professor of dermatology at Illinois.
Dr. Clark W. Finnerud, assistant professor of dermatology at Rush.
Dr. William J. Diekmann, associate professor of obstetrics and gynecology, School of Medicine, University of Chicago.
Dr. Tell Nelson, associate in medicine at Illinois.
Dr. Ben Z. Rappaport, associate in medicine at Illinois.

Information may be obtained from Mr. G. R. Moon, registrar, University of Illinois College of Medicine, 1853 West Polk Street.

MARYLAND

Portrait of Dr. Hunner.—Dr. Guy L. Hunner, since 1932 adjunct professor of gynecology, Johns Hopkins University School of Medicine, Baltimore, was honored recently when a group of workers from the department of gynecology presented a portrait of him to the university. It was the work of his daughter, Mrs. John Parsons. Dr. Hunner graduated at Johns Hopkins in 1897 and has been on its faculty since 1902.

Annual Health Conference.—The twentieth annual health conference of the field and departmental staffs of the state department of health was held in Baltimore, May 3. Speakers included:

Drs. Perrin H. Long and Horace L. Hodes, Baltimore, Use of Sulfapyridine in Treatment of Disease.
Dr. Lloyd D. Felton, Washington, D. C., Studies on Immunization Against Pneumonia.
Ira V. Hiscock, Sc.D., New Haven, Conn., Public Health Education and Its Place in a Community Health Program.
Dr. Charles H. Peckham Jr., Baltimore, Preliminary Report Based on a Study of 1,500 Births on the Obstetrical Care Available to Rural Mothers in Maryland.
Arthur W. Hedrich, Sc.D., Baltimore, Results of a Statewide Test of Birth Registration in Maryland.
Dr. Austin V. Deibert, Baltimore, The State Venereal Disease Program for 1939.

MASSACHUSETTS

State Child Guidance Clinics.—Two new child guidance clinics have been established through the efforts of the Massachusetts Society for Mental Hygiene and the cooperation of the division of mental hygiene of the state department of mental health. One is in Hamilton and the other in Marblehead. Because of the special interest of the schools in these towns, the clinics are housed in the Jonathan Lamson School in Hamilton and in the Junior High School in Marblehead, according to the *Monthly Bulletin* of the state society for mental hygiene.

Director for Infantile Paralysis Clinic.—Dr. William T. Green, assistant professor of orthopedic surgery, Harvard Medical School, Boston, has been made director of the after-care clinic of the Harvard Infantile Paralysis Commission, effective June 1. Dr. Green will have charge of one of the two main divisions of the scientific work of the commission. Located in the Children's Hospital, the clinic cares for about 1,400 children annually and conducts investigations of methods of treatment of infantile paralysis and of its after-effects. Dr. William Lloyd Aycock, assistant professor of preventive medicine and hygiene, Harvard Medical School, is in charge of the commission's division of laboratory research, including study of the causation and epidemiology of the disease. The commission was established by the Harvard Corporation in 1916. It is supported entirely by public subscription and receives no financial aid from the university. Besides supporting laboratory and clinical research, the commission also acts in an advisory capacity to the Massachusetts Department of Health and cooperates with the Vermont Board of Health.

MICHIGAN

New Building for State Health Department.—The Michigan State Department of Health plans to begin, July 1, the construction of a new four story building in northwest Lansing in conjunction with its central laboratories. WPA funds totaling \$64,999 and a state appropriation of \$50,000 will be used toward financing the building.

MINNESOTA

Personal.—Dr. Charles E. Rea has resigned as assistant professor of surgery at the University of Minnesota Medical School, Minneapolis, to enter private practice in St. Paul.—Dr. Russell R. Heim, Minneapolis, has been appointed health commissioner of Hennepin County, succeeding the late Dr. Thomas T. Warham.—Dr. Frederick W. Hoffbauer, Minneapolis, has been appointed physician on the staff of the health service of the University of Minnesota, effective September 16.—Dr. Charles L. Scofield, Benson, recently observed two anniversaries, one his seventy-fifth birthday and the other his completion of fifty years in the practice of medicine. He has been a member of the state board of health for twelve years, serving four years as president.

MISSISSIPPI

Health Department Activities.—A health department has been established in Marion County with Dr. Ralph Sneed, University, as director. Dr. Alton R. Perry, Laurel, has resigned as director of the unit in Jones County; he has held the office since the department's establishment in 1937. Dr. Ransom J. Jones, Poplarville, has been appointed director of the Leflore County Health Department; he has been in charge of

the southeastern health district, composed of George, Greene, Stone and Perry counties. He will be succeeded in the latter position by Dr. Edwin H. West, Purvis. Dr. Byron O. Garner, Greenwood, acting officer in Leflore County, has been made full time director in Noxubee County. Dr. James H. White, Corinth, acting health officer in Alcorn County, has been placed on a full time basis. Dr. Lynn D. Abernethy, Grenada, has been made director of health in Marshall County, relieving Dr. John W. Dugger, who had been acting health officer since the resignation of Dr. John W. Dorman, Dyess, Ark. Dr. Murphy M. Sims, Lexington, acting director of Holmes County, has been appointed health officer of Lafayette County, succeeding Dr. James H. Armstrong, Oxford, who resigned to enter private practice.

NEVADA

Plague Infection.—According to *Public Health Reports*, plague infection was proved in tissue from two ground squirrels, *Citellus beldingi oregonus*, found dead, April 18, on ranches 6 and 10 miles, respectively, northeast of Lamoille; in a pool of twenty fleas from six ground squirrels of the same species, shot on the same date, on a ranch 8 miles northeast of Lamoille, and in tissue from one ground squirrel, *Citellus richardsoni nevadensis*, also shot, April 18, on a ranch 5 miles west of Wells. All localities mentioned are in Elko County.

NEW YORK

Appointments to Health Council.—Dr. L. Whittington Gorham, Albany, has been appointed a member of the New York State Public Health Council to fill the vacancy created by the death of Dr. Livingston Farrand. The term will expire Dec. 31, 1942. Dr. Walter A. Leonard, Cambridge, was reappointed for a six year term.

Personal.—Dr. Arthur J. Bedell, Albany, received the honorary degree of doctor of laws at the annual commencement of St. Bonaventure's college, Alleghany, June 4.—Benjamin H. Willier, Ph.D., head of the division of biological sciences, University of Rochester, since 1933, has been appointed Henry Walters professor of zoology at Johns Hopkins University, Baltimore.

Infirmery Named for School Physician.—A new infirmery at Vassar College, Poughkeepsie, was named Baldwin House in honor of Dr. Jane North Baldwin, chairman of the department of health and hygiene, during dedicatory ceremonies, May 25. A tablet on the facade was unveiled by Dr. William Darrach, dean emeritus and professor of clinical surgery, at the Columbia University College of Physicians and Surgeons. Dr. Baldwin graduated at Cornell University Medical School in 1900. In 1905 she joined the medical staff at Vassar College, becoming its head in 1929. The new infirmery has a capacity of thirty-five beds.

New York City

Military Clinical Conference.—The Metropolitan New York chapter and the New Jersey chapter of the Association of Military Surgeons of the United States held a clinical conference for medicomilitary officer personnel at the United States Marine Hospital, Stapleton, June 22. Clinical presentations were made on coronary diseases, diseases of the genito-urinary tract and gastric ulcers. Dr. Charles W. Naulty Jr., Perth Amboy, N. J., was in charge of arrangements.

Annual Graduate Fortnight.—The New York Academy of Medicine will present its annual graduate fortnight October 14-25. The theme of the meeting will be infections, with panel discussions, afternoon clinics, clinical demonstrations, evening addresses and appropriate exhibits making up the program. The purpose of the fortnight is to make a complete study and authoritative presentation of a subject of importance in the practice of medicine and surgery. A complete program and registration blank may be obtained from Dr. Mahlon Ashford, New York Academy of Medicine, 2 East One Hundred and Third Street.

Society News.—Speakers at a meeting of the New York Roentgen Society, May 20, included Drs. Lucien M. Pascucci on "Roentgen Therapy in Leukemia; Survival Period and Reaction of Spleen and Nodes" and Jacob R. Freid, "Pulmonary and Skeletal Metastases from Cancer of the Kidney, Prostate and Bladder."—Dr. William A. Antopol, Newark, N. J., among others, addressed the New York Pathological Society, May 23, on "Experimental Aspects of Heparin-Sulfapyridine in Massive Urolithiasis."—Dr. Grant P. Pennoyer addressed the New York Surgical Society, May 8, on "Peripheral Arterial Disease."—Dr. Albert D. Kaiser, Rochester, N. Y., addressed the Bronx County Medical Society,

May 15, on "Role of the Tonsils in Health and Disease."—Dr. Geza Weitzner, among others, addressed the Bronx Gynecological and Obstetrical Society, May 27, on "Treatment of Gonorrheal Salpingitis with Estrogenic Hormones."

Report of County Library.—The directing librarian of the Library of the Medical Society of the County of Kings and the Academy of Medicine of Brooklyn in his annual report stated that the library has filled all its available space. During the year it was necessary to shorten the time when the library was open to nonmembers. This resulted in a decrease of readers using the library from 17,055 in 1938 to 14,708 in 1939, yet the number of books consulted increased by 669 and the number taken out for home use decreased 2,239. This library, fourth in size of the medical libraries of the country outside of the Surgeon General's library, receives financial assistance from numerous medical societies, some dental societies and several other organizations, as well as many individuals who donate books, journals and funds. During 1939 the library added 835 volumes. It also purchased 807 volumes of periodical publications or back files. The total number of current periodicals and serial publications now on file is 1,566, the report said. Conditions abroad have affected the receipt of current journals. Periodicals formerly received from Spain had not resumed coming to the library at the time of the report; no Polish journals had arrived since August 1939. Some French and German journals were being received irregularly.

NORTH CAROLINA

Research Fellowship in Zoology.—Establishment of the Charles W. Hargitt Research Fellowship in zoology at Duke University, Durham, is announced. The fellowship was made possible by a bequest in the will of the late Charles Wesley Hargitt, Ph.D., for many years research professor of zoology at Syracuse University, Syracuse, N. Y., who died in 1927. It is expected that the fellowship will be granted in 1941 for research in cytology. Dr. Hargitt's son, George T. Hargitt, Ph.D., is professor of zoology at Duke.

Society News.—At a meeting of the Thermal Belt Medical Society in Marion recently the speakers were Drs. Isaac A. Phifer Jr., Spartanburg, S. C., on "The Gonorrheal Problem"; Paul T. McBee, Marion, "Middle Meningeal Hemorrhage"; John C. Hamrick, Shelby, "Sutures and Suture Materials" and John W. Austin Woody, Tryon, "Maternal Health Program in Polk County."—Drs. Charles F. Glenn and Ben E. Washburn, Rutherfordton, recently addressed the Rutherford County Medical Society on "Chronic Cystic Mastitis" and "Public Health Activities in the Caribbean Region," respectively.

OHIO

Grants at Western Reserve.—The John and Mary R. Markle Foundation of New York has appropriated \$4,100 for the continuation of studies of the "Cause and Treatment of Ventricular Fibrillation" at Western Reserve University School of Medicine, Cleveland. Studies have been in progress for a year at the school and the results justify a further pursuit of the work. The Commonwealth Fund of New York has given \$17,900 to the school for a three year program of studies of extracardiac factors of circulation, the part which the blood vessels play in the blood flow, particularly in failure of the circulation in surgical shock and similar conditions. Both studies are under the direction of Dr. Carl J. Wiggers, professor of physiology at the school. The Markle Foundation has made a grant of \$2,000 to the school to support an investigation of intravenous bismuth injections by Drs. Torald H. Sollmann, professor of pharmacology and materia medica, dean and executive officer, and Joseph Seifter, senior instructor in pharmacology.

PENNSYLVANIA

Society News.—Dr. Holbert J. Nixon, Uniontown, discussed toxemias of late pregnancy before the Fayette County Medical Society in Uniontown, June 6.—Dr. Leo D. O'Donnell, Pittsburgh, discussed "Diagnosis and Treatment of Gallbladder Disease" before the McKean County Medical Society in Bradford, May 21.—Dr. Ralph M. Tyson, Philadelphia, addressed the Blair County Medical Society in Altoona, May 28, on "Blood Disorders in Infancy and Childhood."

Philadelphia

University News.—The Van Lennep Surgical Society of the Hahnemann Medical College of Philadelphia presented Dr. William F. Rienhoff Jr., Baltimore, in a lecture for students and physicians recently at the college. Dr. Rienhoff's subject was "The Present Status of the Surgical Treatment of Carcinoma of the Lung."

Annual Health Award.—The second annual award of the Pennsylvania Public Health Association this year went to Dr. Henry Field Smyth, assistant professor of industrial hygiene, University of Pennsylvania School of Medicine, and Arthur M. Dewees, executive secretary of the Pennsylvania Tuberculosis Association since 1919, for achievements in public health. At the fifteenth annual meeting of the association, May 24, when the award was presented, Harry B. Meller, Pittsburgh, was chosen president-elect and Dr. Paul A. Keeney, Harrisburg, was installed as president.

Society News.—A symposium on tuberculosis was presented before the Philadelphia Pediatric Society, May 14, by Drs. Miriam E. Brailey, Baltimore; Esmond R. Long, Philadelphia; Richard H. Smith, U. S. Public Health Service, and Josephine Shefner, R.N., U. S. Indian Service. At a meeting of the Philadelphia Neurological Society, May 24, the speakers were Drs. Ernest A. Spiegel on "Rhythmic Stimulation of the Labyrinth"; Hymen Edward Yasskin, Camden, N. J., "Rickettsial Meningo-Encephalomyelitis," and Howard A. Howc, Baltimore, "Experimental Studies on Poliomyelitis." The Philadelphia and New York urological societies held a joint meeting at Jefferson Medical College of Philadelphia recently. The speakers included Drs. Virgil H. Moon, on "Early Recognition of Shock and Its Differentiation from Hemorrhage"; Paul R. Leberman, "Studies on the Pathology of the Human Renal Papilla"; Patrick Boland Hughes, "Renal Aspects of Hypertension"; Alexander Randall, "Proof of Origin of Growth of Three Different Chemical Types of Renal Calculi," and Arthur M. Walker, "Further Experiments on Localization of Function Within the Renal Tubule."

SOUTH CAROLINA

Society News.—Dr. James E. Paulin, Atlanta, Ga., addressed the Columbia Medical Society, May 13, on "Congestive Heart Failure."—Drs. Eugene M. Landis, Richmond, Va., and Staige D. Blackford, Charlottesville, Va., addressed the Greenville County Medical Society, Greenville, May 13, on "Pathogenesis and Treatment of Edema" and "Spontaneous Pneumothorax" respectively.

Course in Obstetrics and Pediatrics.—The Medical College of the State of South Carolina has arranged for a program of instruction in obstetrics and pediatrics for South Carolina physicians. Four physicians will be taken at a time for two weeks of ward rounds and clinics with the college staff. Arrangements are made through the maternal and child health division of the state board of health.

Appointments to State Medical Board.—New appointments to the state board of medical examiners include the following: Dr. George C. Brown Jr., Walterboro, to succeed Dr. Daniel L. Maguire, resigned; Dr. Wilbur R. Tuten, Fairfax, succeeding the late Dr. Josiah S. Matthews, Denmark; Drs. Enoch M. Dibble, Marion, and Albert Earle Boozer, Columbia, were reappointed, newspapers reported.

TENNESSEE

Medical Section in Chattanooga Library.—A room to be known as the "Medical Section of the Chattanooga Public Library" is being arranged through a gift of funds and books by the Chattanooga and Hamilton County Medical Society. A collection of approximately 1,000 books and bound magazines and a large file of unbound magazines have been given to the library by the society as a nucleus of a medical library. Equipment and furniture are being provided by the library.

TEXAS

Personal.—Dr. James E. Peavy Jr., Austin, recently became director of the health unit for San Augustine and Sabine counties.—Dr. Samuel D. Whitten, Greenville, has been appointed health officer of Hunt County to succeed Dr. Lenuel E. Gee, resigned.—Dr. John W. Spies, dean and professor of public health, University of Texas School of Medicine, Galveston, was recently elected to the Royal Society of Tropical Medicine and Hygiene in London, according to the *Texas State Journal of Medicine*.—A group of women in San Benito recently honored Dr. Clarence M. Cash by dedicating a room in the Valley Baptist Hospital, Harlingen, in his name, in recognition of his professional services in the last forty years. Dr. Cash received a portfolio of pictures of children whose birth he had attended.

Annual Interns' Night.—The Tarrant County Medical Society instituted an annual interns' night at its regular meeting in Fort Worth, May 22. The program consisted of papers

entered in the annual case report contest conducted among residents and interns of the five Fort Worth general hospitals. The first prize of \$15 was awarded to Dr. Richard G. Scobee, a recent graduate of the University of Texas School of Medicine, Galveston, an intern at Harris Memorial Methodist Hospital. His paper was entitled "Ectopic Pregnancy." The second prize of \$10 went to Dr. William D. Sedgwick, a graduate of the University of Tennessee College of Medicine, Memphis, and an intern at City-County Hospital, Fort Worth, for a paper on "Hyperglycemia and Glycosuria in Coronary Thrombosis." Honorable mention was given to Dr. James E. McConnell, a graduate of Louisiana State University School of Medicine and an intern at Harris Memorial Methodist Hospital, for a paper entitled "Acute Streptococcus Viridans Endocarditis." The winning papers will be published in the *Tarrant Medical Bulletin*.

VERMONT

Postgraduate Course for Ophthalmologists.—The College of Medicine of the University of Vermont, Burlington, held a postgraduate course for ophthalmologists in neuromuscular anomalies of the eye during the week of June 17. The sessions were held in the medical college building. The course was under the direction of the department of ophthalmology and otolaryngology, and the instructor was Dr. George P. Guilbor, associate attending ophthalmologist at the Children's Memorial Hospital, Chicago.

WASHINGTON

Poliomyelitis in Tacoma.—An outbreak of poliomyelitis in Tacoma and Pierce County was reported in *Northwest Medicine* for June. Fifteen cases with four deaths had occurred up to May 21. Dr. Edward C. Rosenow, Rochester, Minn., addressed the Pierce County Medical Society, May 27, on poliomyelitis.

University of Washington Graduate Course.—The twenty-fourth annual graduate medical course at the University of Washington, Seattle, will be held July 15-19. The faculty will be:

Dr. Soma Weiss, Jersey professor of theory and practice of physics, Harvard Medical School, Boston, for medical topics.

Dr. Charles F. McKhann, associate professor of pediatrics and communicable diseases, Harvard Medical School, Boston, pediatrics.

Dr. Richard B. Cattel, the Lahey Clinic, Boston, surgery.

Chauncey Leake, Ph.D., professor of pharmacology, University of California, San Francisco, pharmacology.

Tickets may be purchased by mail from the Extension Division, Lewis Hall, University of Washington. The fee is \$10.

PUERTO RICO

University News.—Dr. Ramon M. Suarez, associate professor of tropical medicine in the School of Tropical Medicine at the University of Puerto Rico under the auspices of Columbia University, San Juan, has been made head of the department of clinical medicine. Dr. Albert V. Hardy, assistant professor of epidemiology, De Lamar Institute of Public Health, Columbia University, New York, was in Puerto Rico recently arranging for the establishment of a school of public health in the School of Tropical Medicine. It is expected that the school will open in September.

GENERAL

W. W. Buffum Dies.—Mr. William W. Buffum, treasurer and general manager of the Chemical Foundation, New York, since 1921, died at his home in Montclair, N. J., June 22, after a brief illness. He was 51 years old and a native of Pennsylvania. In 1917 Mr. Buffum joined the staff of the Alien Property Custodian in Washington, D. C., of which the late Mr. Francis P. Garvan, later president of the Chemical Foundation, was the head. Through his position with the foundation Mr. Buffum was business manager of the *American Journal of Cancer*, the *Journal of Clinical Investigation* and the *Sewage Works Journal*. At one time he was treasurer of the American Institute of Physics.

Examination in Obstetrics and Gynecology.—The next written examination and review of case histories (part I) for group B candidates of the American Board of Obstetrics and Gynecology will be held in various cities of the United States and Canada, Jan. 4, 1941. Candidates who successfully complete these examinations proceed automatically to the part II examinations held later in the year. Applications for admission to group B, part I, examinations must be on file in the secretary's office not later than October 5. The general oral and pathologic examinations (part II) for all candidates (groups A and B) will be conducted by the entire board, meeting at Cleveland immediately prior to the 1941 session of the American

Medical Association. After Jan. 1, 1942, there will be only one classification of candidates and all will be required to take part I and part II examinations. Further information and application blanks may be obtained from Dr. Paul Titus, secretary, 1015 Highland Building, Pittsburgh (6), Pa.

Changes in Status of Licensure.—The California State Board of Medical Examiners has announced the following changes, among others:

Dr. Harry W. Boyd, now of Pittsburgh, license restored, February 26.
Dr. Charles W. Farley, Los Angeles, license revoked, February 29, for an alleged illegal operation.

Dr. Wendell O. Gregg, Los Angeles, placed on probation for five years, with a proviso that he does not practice from Feb. 27, 1940, until Jan. 1, 1941; that during the probation he abstain entirely from alcoholic beverages and that he shall not have in his possession a narcotic permit.

Dr. Yasuzo Karaki, Los Angeles, license revoked, February 29, for his conviction of a crime involving moral turpitude.

Dr. Eugene Curry Nelson, Los Angeles, license revoked, February 29, for an alleged illegal operation.

Dr. John Marshall Robinson Jr., Los Angeles, license revoked, February 29, for an alleged illegal operation.

Dr. Frederic Waitzfelder, Los Angeles, placed on probation for five years, February 27, without narcotic privileges.

Dr. James C. Weld, Los Angeles, license restored, February 26.

LATIN AMERICA

Personal.—Dr. José Arce, dean of the medical school of the University of Buenos Aires, recently spent a month visiting hospitals and medical schools in the United States.

Program to Control Whooping Cough.—At the request of Dr. José Zozaya, head of the National Serum Institute of Mexico, arrangements have been completed to organize a pertussis control program in the republic of Mexico under the direction of Pearl L. Kendrick, Sc.D., associate director of the Michigan Department of Health Laboratories. Dr. Kendrick, who directed the series of Michigan studies from 1934 to 1938, will assist the Mexican government for about six weeks this summer. The National Serum Institute of Mexico plans to provide a vaccine similar to that being used in Michigan and Dr. Kendrick will direct a study for checking its effectiveness in controlling the virulent type of whooping cough prevalent in Mexico, it was reported. The disease accounted for 2,000 deaths in the republic of Mexico last year and is said to be prevalent the year around.

Government Services

Chief Medical Officer Wanted

The U. S. Civil Service Commission has announced an open competitive examination to fill the position of chief of the medical division of the commission. It is urgent that the position be filled immediately. Applications will be received for only two weeks, the announcement said. Applications must be filed with the Washington office not later than July 8 if received from states east of Colorado and not later than July 11 if received from Colorado and states westward. The salary is \$6,500 a year, less a retirement deduction of 3.5 per cent. Applicants must have been graduated with an M.D. degree from a medical school of recognized standing or must be licentiates of the National Board of Medical Examiners. In addition, they must have had highly responsible professional experience in the field of medicine, partly in a managerial or supervisory capacity. Applicants obtaining the highest ratings may be requested to appear for an oral examination. Should vacancies requiring similar qualifications occur in other government agencies, they may be filled from this examination. The duties of the chief of the medical division of the Civil Service Commission will be to direct a medical program more extensive than anything the commission has yet undertaken. He will be responsible for all steps taken by the commission to control physical standards and regulations for government employees and candidates for such employment. He will act as medical adviser to the commission, interpreting medical problems in programs concerning recruiting, employment and retirement, will cooperate with other government agencies in developing employment programs and policies and will keep in touch with medical schools, hospitals and professional associations in order to maintain the best recruiting standards and also to develop types of training calculated to serve better the needs of the government. Information and application forms may be obtained from the Secretary, Board of U. S. Civil Service Examiners, at any first or second class postoffice or from the Civil Service Commission, Washington, D. C.

Foreign Letters

PARIS

(From Our Regular Correspondent)

June 2, 1940.

Alcoholic Content of Wine

A committee recently authorized by the Academy of Medicine to study the danger of excessive use of wine reported that alcohol contained in wine was as injurious as distilled alcohol. Public opinion in France, however, sides with wine against alcohol and thinks that little toxicity inheres in wine because of its diluted state and that wine can be counted among wholesome beverages. Likewise powerful organizations, such as wine growers and distillers, have a great interest at stake. The report of the chairman of the committee, Lapicque, unanimously accepted by the academy, once more brings home not only to the public but to the different control agencies and the legislatures the fact that a liter of ordinary wine contains the equivalent of a glass of alcohol and that alcohol is injurious when daily consumption exceeds 100 cc. Strict regulation of alcoholic beverages was called for in the report, as well as the suppression of misleading advertising. Fournau, supporting Lapicque's conclusions, pointed out that only one tenth of the alcohol imbibed was excreted by the lungs and kidneys. The remainder was oxidized in the body or rather dispersed to be oxidized and finally accumulated in the brain and the spinal fluid. When alcohol is taken in fractionated doses, a man weighing 70 Kg. (154 pounds) could oxidize 120 Gm. in twelve hours like other food. The rest remained stagnant in the tissues.

Radiopaque Injections in Bone Marrow

Raymond Benda recently presented to the Société médicale des hôpitaux of Paris the results achieved by injecting a radiopaque substance into the bone marrow of the sternum to study its vascular connections. He employed colloidal thorium dioxide. In the cadaver the roentgenogram regularly shows an area of opaque madreporic substance resembling coral reef, with the injection forming the center. Beyond, the opaque substances spread out in stellate lines with more or less curvature. The internal mammary veins are almost always invaded by the radiopaque fluid. Josefson in 1934 had tried a solution of iodine in poppyseed oil in vivo but had been unable afterward to find a trace of the injected material. Benda tried the same injection on two incurable patients, one with dementia paralytica, the other with inoperable carcinoma. The one was injected at the manubrium, the other at the sternal lamina situated at the third intercostal space. Unlike the x-ray observations in the cadaver, neither the intermediate areas nor the stellate lines were discoverable in man. The substance had spread about like small scattered grains, almost entirely within the interior of the sternum. It seems that the substance "had somehow been seized on its arrival in the bone marrow by cells in full activity." The complete harmlessness of the injections and the interest thus aroused justify further investigations.

Antitetanus Anatoxin

In about 40 per cent of adults treated with antitetanus serum, reactions are observed with one death in 50,000 vaccinations, in spite of the use of Besredka's method. Gaston Ramon on the one hand and Jeanneney, Saraste and Fauvert on the other presented the results obtained with tetanus anatoxin before a recent session of the Académie de chirurgie. In horses the anatoxin produces tetanus antitoxins. By means of the stimulating properties of certain substances such as tapioca, serums can be obtained within a few weeks whose titer attains to 4,000, 6,000 and 12,000 units, these serums containing from ten to

twenty times fewer proteins than is found in crude horse serum. Tetanus antitoxins retain their strength longer in this form than does raw horse serum. They possess one tenth of a unit strength after two weeks and do not disappear entirely at the end of a month. Denaturation by the combined action of formaldehyde and heat seems to confer on them qualities less foreign to the organism than raw horse serum. Anatoxin solutions in equivalent antitoxic values are less sensitizing than antitetanus horse serum. Reinoculated persons have fewer reactions, even those who have previously received an injection of raw horse serum. Jeanneney presented 153 cases in which anatoxin was employed prophylactically in recently wounded soldiers, fifty-two of whom (persons affected with asthma, urticaria or hepatic insufficiency) had been chosen because they were predisposed to anaphylactic reactions. In only 3 1/4 per cent of these, slight accidents manifested themselves about the fifth day, whereas in a control group twenty cases of significant serum reactions were observed. The wounded can be given prophylactic injections simultaneously with antigangrene serum and in the vaccination of young recruits it can be combined with antidiphtheria anatoxin and antityphus vaccines.

BUENOS AIRES

(From Our Regular Correspondent)

May 17, 1940.

Cardiac Examination of School Children

In Buenos Aires 10,000 school children have recently been subjected to a circulatory examination. First, a general examination was made in the schools; children who had cardiac murmurs or other symptoms were then subjected to a careful clinical examination. It was found that 2.4 per cent of the children had organic heart lesions. It was hoped that by the early recognition of these circulatory disturbances better results would be obtainable when the children became adults. This represents an important social problem; the investigation was carried out in the Hospital Pirovano by Dr. A. Ruccheffi and R. Gay together with the medical inspector, J. M. Macera.

The cardio-articular rheumatism of school children in Argentina is likewise to be regarded as a social problem. The internist Prof. Dr. Rafael A. Bullrich recently made an investigation and arrived at the following results: In England and in the Scandinavian countries, the mortality of children from this disease is higher than in other countries (from 3.6 to 4.5 per cent); in the United States it is estimated at 2.41 per cent. In Argentina, according to investigations of Macera and Costa Bertani in Buenos Aires, the mortality from this disease among children up to 15 years of age is 22 per cent; however, in Rosario, the second largest city of Argentina, it is, according to Sloer, 12.5 per cent among children of the ages from 4 to 15 (as it is in France). According to a communication of Senator Landaburn in the Argentine senate, 2.41 per cent of the children less than 14 years of age died as the result of this disease. Bullrich concludes that the ratio of morbidity and mortality of cardio-articular rheumatism of children, taken absolutely, as well as relatively to other infectious diseases, is as high in Argentina as in other countries, if not higher.

Medical Schools in the Argentine Republic

In the Argentine Republic all the universities are supported by the federal government. Of the six universities, four have faculties of medicine. These faculties comprise, besides the medical school, those of pharmacy and dentistry and some of them a school for midwives. There are 8,428 medical students (the population of the country is about 14 million); 545 new doctors graduated in 1939.

The B.A. degree is required for entrance in all the schools; those of Buenos Aires and La Plata also have an entrance examination. The course of studies varies from six to seven

years, two or three of which are preclinical and four clinical. A thesis is also required by the medical school of Buenos Aires; the Rosario school requires a thesis and a course in history of medicine for the doctor's degree but gives a diploma permitting practice without these last requisites. The university diploma in all cases permits practice without further examinations. The number of students makes it necessary for them to take their practical work in large groups; in the preclinical years they attend the laboratories only about once a week. A limitation of the students to the capacity of the schools has often been requested by the professors, but politics has always stopped the measures necessary to put it through. In 1927 the medical school of Buenos Aires decided to limit the number entering but was overridden by the university council. The medical school in La Plata has in theory limited to 100 the number of students entering the first year, but in practice its laboratories and facilities are insufficient even for that number. There are only three full time professors in Buenos Aires, two in Rosario and two in Córdoba. A student may take examinations any number of times; these take place three times a year, so that with sufficient persistence students who are not really capable may graduate. The schools are governed by a council of eight professors elected by the full professors, four elected by the adjoint professors and three students elected by the students. In spite of so many unfavorable circumstances, in recent years there has been an increasing number of students and young doctors. The general welfare of the country has progressed and naturally has had a favorable influence on the universities.

Personals

Dr. J. A. Etchepareborda has been appointed acting director of the national department for hygiene.

The decease of Prof. E. P. Fidanza, who occupied the chair of dermatology at the school in Rosario, is greatly regretted. He was one of the most distinguished and active specialists in the country.

Brief Mention

The Pediatric Society of Uruguay (Sociedad uruguaya de pediatria) has celebrated its twenty-fifth anniversary.

The new anesthetic apparatus of Prof. José Arce has been transmitted to the president of the Royal Society of Medicine in London.

The Comité Franco-Argentino, organized to aid war victims, has presented twenty motorized ambulances to the French Red Cross.

Marriages

BENJAMIN OWEN RAVENEL, Baltimore, to Miss Evelyn Martin of Columbia, S. C., May 24.

JOHN BRISTOL GRAMLEN, New York, to Miss Eleanor Swift of Maplewood, N. J., May 11.

WALTER E. GOERING, Blair, Neb., to Miss Edith Cochrane of Butte, Mont., March 25.

ROBERT LEE PERCY, Rochester, N. Y., to Miss Marjorie Nina Rouch of Ontario, May 5.

ROLAND I. PITCHER, Chicago, to Miss Jeanne Du Pre Moore of Rockford, Ill., May 25.

GEORGE D. WHITACE, Springfield, Ohio, to Miss Mary Esther Robson in April.

ROBERT F. KAISER to Miss Marjorie Eileen Ferguson, both of Philadelphia, June 1.

RALPH MOSCHELLA to Miss Helen Holmesley, both of Statesville, N. C., April 8.

SAMUEL RATHBUN, Cleveland, to Miss Mollie McIntyre of Omaha, April 27.

RALPH V. NICOSIA to Miss Ann Steerin, both of Dayton, Ohio, March 27.

Deaths

Joannes Gregorius Dusser de Barenne, New Haven, Conn.; Universiteit van Amsterdam Geneeskunde Faculteit, Netherlands, 1909; instructor of physiology at the University of Amsterdam from 1909 to 1911; psychiatrist to the Meerenberg Asylum, Holland, from 1911 to 1914; lecturer in physiology at the University of Utrecht from 1919 to 1930; neurologist to St. Antonius Hospital, Utrecht, from 1919 to 1930; since 1930 Sterling professor of physiology at the Yale University School of Medicine; member of the American Physiological Society, American Society for Pharmacology and Experimental Therapeutics, Inc., British Physiological Society and Neurological Society of Amsterdam; on the editorial board of the *Journal of Neurophysiology*; aged 55; died, June 9, in the Deaconess Hospital, Boston, of coronary thrombosis.

William Thomas Coughlin Ⓢ St. Louis; Washington University School of Medicine, St. Louis, 1901; professor of surgery, St. Louis University School of Medicine; instructor in anatomy at his alma mater from 1901 to 1911; surgeon in chief of St. Mary's Group of Hospitals; consulting surgeon to the Jewish Hospital, St. John's Hospital and the City Hospital; member of the Western Surgical Association and the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; served during the World War; editor of the American edition of Rose and Carless' "Manual of Surgery"; aged 67; died, May 22.

Charles Stover Ⓢ Amsterdam, N. Y.; University of Pennsylvania Department of Medicine, Philadelphia, 1880; member of the House of Delegates of the American Medical Association in 1908 and 1910; past president of the Medical Society of the State of New York and the Medical Society of the County of Montgomery; city health officer from 1882 to 1889; on the staffs of the Amsterdam City and St. Mary's hospitals; for many years secretary of the Montgomery County Tuberculosis and Public Health Association; at one time secretary of the board of trustees of the New York State Hospital, Ray Brook; aged 89; died, April 9.

Joseph Edwards Kerney Ⓢ Providence, R. I.; Yale University School of Medicine, New Haven, Conn., 1908; member of the American Urological Association; fellow of the American College of Surgeons; formerly associated with the United States Public Health Service; chief urologist, Rhode Island Hospital, Providence, and the Memorial Hospital, Pawtucket; attending urologist, St. Joseph's Hospital; consultant in urology, Charles V. Chapin and Miriam hospitals, Providence, Westerly (R. I.) Hospital, South County Hospital, Wakefield, and the state institutions, Howard; aged 58; died, May 4, of cerebral hemorrhage.

Henry Holdich Morton Ⓢ Brooklyn; Long Island College Hospital, Brooklyn, 1882; since 1930 emeritus professor of urology at his alma mater; member of the American Association of Genito-Urinary Surgeons and the American Urological Association; fellow of the American College of Surgeons; on the staffs of the Long Island College Hospital, Kings County Hospital and St. Peter's Hospital; member of the committee on venereal diseases in the Surgeon General's Office during the World War; author of "Genito-Urinary Diseases and Syphilis" in five editions; aged 78; died, May 3, in Gulfport, Fla.

Richard Root Smith Ⓢ Grand Rapids, Mich.; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1892; member of the House of Delegates of the American Medical Association, 1911-1912; member of the American Gynecological Society; a founder and a governor of the American College of Surgeons; served during the World War; on the staff of the Blodgett Memorial Hospital; past president of the Michigan State Medical Society and the Kent County Medical Society; regent of the University of Michigan from 1931 to 1937; aged 70; died, May 7, of coronary thrombosis.

Edward John Angle Ⓢ Lincoln, Neb.; Medical College of Ohio, Cincinnati, 1887; University of Pennsylvania Department of Medicine, Philadelphia, 1895; member of the American Urological Association and the American Academy of Dermatology and Syphilology; formerly professor of skin and genito-urinary diseases at the University of Nebraska College of Medicine; attending dermatologist to the Lincoln General Hospital and St. Elizabeth's Hospital; consulting dermatologist to the Bryan Memorial Hospital; aged 75; died, April 25.

James Wilson Hunter Jr. Ⓢ Norfolk, Va.; University of Virginia Department of Medicine, Charlottesville, 1901; fellow of the American College of Physicians; member of the American Roentgen Ray Society, Radiological Society of North America, Inc., and the American College of Radiology; past president of

the Norfolk County Medical Society; served during the World War; on the staff of the Hospital of St. Vincent de Paul; aged 62; died, May 11, in the Army and Navy Hospital, Hot Springs National Park, Ark., of coronary occlusion.

James Morrison Ⓢ Lynchburg, Va.; University of Virginia Department of Medicine, Charlottesville, 1898; past president of the Lynchburg Academy of Medicine and the Virginia Society of Ophthalmology; on the staffs of the Lynchburg General Hospital, Marshall Lodge Memorial Hospital and Virginia Baptist Hospital, Lynchburg, and the State Colony for Epileptics and Feeble-minded, Colony; aged 68; died, May 15, in the University of Virginia Hospital, Charlottesville.

John D. Miller Ⓢ Cincinnati; Medical College of Ohio, Cincinnati, 1897; formerly clinical professor of gynecology at the University of Cincinnati College of Medicine; member of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; gynecologist to the Good Samaritan Hospital and Christ Hospital; consultant in gynecology at the Cincinnati General Hospital and the Deaconess Hospital; aged 64; died, May 18.

Donald MacKenzie Faulkner, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1918; member of Medical Society of Virginia; associate professor of orthopedic surgery at the Medical College of Virginia; member of the American Academy of Orthopedic Surgeons; on the staff of the Crippled Children's Hospital; aged 47; died, May 6, when he fell from a window.

Joseph Stanley Maleski Miller, Colledgeville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1917; member of the Medical Society of the State of Pennsylvania; served during the World War; on the staff of the Homeopathic Hospital, Pottstown; aged 45; died, April 1, in the Homeopathic Hospital of Chester County, West Chester, of chronic myelogenous leukemia.

Caesar Hirsch Ⓢ Seattle; Albert-Ludwigs-Universität Medizinische Fakultät, Freiburg, Baden, Germany, 1909; member of the Medical Society of the State of New York and the American Academy of Ophthalmology and Otolaryngology; at one time adjunct professor of otology at the New York Polyclinic Medical School and Hospital, New York; aged 54; died, May 14.

William Wallace McKinley, Toronto, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1903; L.R.C.P., of Edinburgh, L.R.C.S., Edinburgh and Licentiate Royal Faculty of Physicians and Surgeons of Glasgow, 1908; formerly chairman of the school board of Port Hope; aged 66; died, April 21, in the Toronto General Hospital.

Otis Burgess Spalding Ⓢ Lieutenant Commander, U. S. Navy, San Diego, Calif.; Cooper Medical College, San Francisco, 1898; entered the navy in 1921 and retired Jan. 1, 1940, because of ill health; fellow of the American College of Physicians and the American College of Radiology; aged 64; died, April 12, of hypertensive heart disease.

Harold Ney Prothero Ⓢ Jeannette, Pa.; Jefferson Medical College of Philadelphia, 1903; past president of the Westmoreland County Medical Society; member of the school board; veteran of the Spanish-American War; on the visiting staff of the Westmoreland Hospital, Greensburg; aged 61; died, April 24, of coronary thrombosis.

Alexander Roderick McDonald Ⓢ Chicago; Chicago Homeopathic Medical College, 1897; Rush Medical College, Chicago, 1898; at one time professor of physiology at the Hahnemann Medical College and Hospital; aged 77; on the staff of the West Suburban Hospital, Oak Park, Ill., where he died, May 3.

Byron Walter Malfroid Ⓢ Flint, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1918; fellow of the American College of Surgeons; served during the World War; on the staffs of St. Joseph's Hospital, Women's Hospital and the Hurley Hospital; aged 46; died, April 6.

Maximilian Edward Smukler, Philadelphia; Jefferson Medical College of Philadelphia, 1910; member of the Medical Society of the State of Pennsylvania; ophthalmologist to the bureau of health of Philadelphia; on the staff of the Northern Liberties Hospital; aged 51; died, April 23.

Arnold William Hackfield Ⓢ Seattle; University of Michigan Medical School, Ann Arbor, 1927; member of the American Psychiatric Association; served during the World War; on the staffs of the United States Marine Hospital and the King County Hospital; aged 40; died, April 26.

Otis L. Aultz, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1891; member of the West Virginia State Medical Association; past president of the Kanawha

County Medical Society; at one time city health officer; aged 71; died, May 14, of arteriosclerosis.

Alva Nicholas Collins * Detroit; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1885; past president of the Wayne County Medical Society; on the consulting staff of the Harper Hospital; aged 79; died, May 23, of coronary sclerosis and thrombosis.

Andrew Jackson Jones, Highland Home, Ala.; Kentucky School of Medicine, Louisville, 1885; member of the Medical Association of the State of Alabama; for many years postmaster; past president of the Crenshaw County Medical Society; aged 82; died, April 7.

Charles David Mason, Entaw, Ala.; University of Alabama School of Medicine, 1914; member of the Medical Association of the State of Alabama; aged 53; died, May 17, in the Veterans Administration Facility, Tusculoosa, of injuries received in an automobile accident.

John Johns, Martins Ferry, Ohio; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the Ohio State Medical Association; formerly member of the city board of education; health officer; aged 63; died, April 14.

Lincoln Atwood Sukeforth, Duluth, Minn.; Medical School of Maine, Portland, 1886; member of the Minnesota State Medical Association; aged 79; died, April 7, of arteriosclerosis, hypertensive heart disease and bronchopneumonia.

Walter Linwood Watson, Monroe, Maine; Medical School of Maine, Portland, 1894; Bellevue Hospital Medical College, New York, 1894; aged 72; died, March 20, of carcinoma of the stomach, right kidney and prostate.

Joseph F. Flynt, Paris, Mo.; Marion-Sims College of Medicine, St. Louis, 1892; Missouri Medical College, St. Louis, 1899; member of the Missouri State Medical Association; aged 71; died, May 4, of pneumonia.

Walter Joseph Smith, New York; Albany (N. Y.) Medical College, 1913; served during the World War; aged 58; died, April 25, in the Fairview Hospital, Great Barrington, Mass., of cerebral hemorrhage.

May Elizabeth Walker, Piedmont, Calif.; Cornell University Medical College, New York, 1914; on the staff of the Peralta Hospital, Oakland; aged 60; died, April 26, of carcinoma of the lung and breast.

John Jeurink, Denver; Barnes Medical College, St. Louis, 1899; member of the Colorado State Medical Society; aged 73; died, May 9, in St. Luke's Hospital of diabetes mellitus and arteriosclerosis.

Guy Llewellyn Burritt, Harrington, Maine; Baltimore University School of Medicine, 1901; member of the Maine Medical Association; aged 71; died, April 30, of cardiac thrombosis.

Herbert Ashley Church, East Canaan, Conn.; New York Homeopathic Medical College and Hospital, New York, 1839; died, April 6, of arteriosclerotic heart disease and bronchopneumonia.

Jesse Wilbur Calkins, Oakland, Calif.; Denver and Gross College of Medicine, 1907; member of the Pacific Coast Ophthalmological Society; aged 60; died, April 22, of coronary embolism.

Royal Lee Love, De Ridder, La.; Tulane University of Louisiana School of Medicine, New Orleans, 1903; member of the Louisiana State Medical Society; aged 62; died, March 30.

Lucius Barnes Goodyear, Dixon, Ill.; Physio-Medical College of Indiana, Indianapolis, 1894; served during the World War; aged 76; died, May 1, of a self-inflicted bullet wound.

Wendal Doop Smith, Bridgton, Maine; University of Oklahoma School of Medicine, Oklahoma City, 1932; aged 36; died, April 6, of a self-inflicted bullet wound of the mouth.

Edgar Valentine Trull, Manchester, Vt.; Albany (N. Y.) Medical College, 1874; member of the Vermont State Medical Society; aged 85; died, April 23, of chronic myocarditis.

Joseph Charles Tripp, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1894; aged 69; died, March 22, of carcinoma of the prostate and bladder.

C. W. Gillham, West Point, Ill.; Homeopathic Medical College of Missouri, St. Louis, 1897; aged 67; died, May 2, at St. Mary's Hospital, Quincy, of pneumonia.

James Francis Hennessey, Stamford, Conn.; College of Physicians and Surgeons, Baltimore, 1904; aged 62; died, April 11, of arteriosclerosis and heart disease.

Beauregard F. Flint, Orange, Calif.; Eclectic Medical Institute, Cincinnati, 1886; aged 78; died, April 7, of hypostatic pneumonia and chronic myocarditis.

Nathaniel Love, Elmira, N. Y.; University of the City of New York Medical Department, 1889; aged 81; died, March 10, of acute dilatation of the heart.

Walter Conley Kinsinger, New Castle, Pa.; Jefferson Medical College of Philadelphia, 1903; aged 60; died, March 20, of a self-inflicted bullet wound.

William Charles Wright, Buffalo; Jefferson Medical College of Philadelphia, 1884; aged 78; died, March 23, of cerebral hemorrhage and hypertension.

Robert John Beacom, Killingly, Conn.; University of Edinburgh Faculty of Medicine, Scotland, 1886; aged 78; died, April 14, of chronic myocarditis.

William Edmund Cecil Day, Sioux Lookout, Ont., Canada; University of Toronto Faculty of Medicine, 1908; aged 56; died, March 30.

Mattie Laughlin Arthur, Omaha; State University of Iowa College of Medicine, Iowa City, 1886; aged 81; died, April 22, of coronary thrombosis.

Charles Addison Kefauver, Stontsville, Ohio; Western Reserve University Medical Department, Cleveland, 1886; aged 83; died, April 2.

Gary Merle Henderson * Upper Darby, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1921; aged 44; died, March 10.

Clark Middleewart Barnstow * Bryan, Ohio; University of Wooster Medical Department, Cleveland, 1881; aged 85; died, March 21.

William J. O'Brien, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1891; aged 76; died, March 4.

Clarence G. Folkens, Stanley, N. B., Canada; McGill University Faculty of Medicine, Montreal, Que., 1904; died, February 24.

Herman Castile * Foreman, Ark.; University of Louisville (Ky.) Medical Department, 1911; aged 51; died, March 29, at Little Rock.

Elfrieda Schultz Bragg, Pittsburg, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1900; aged 72; died, March 17.

Charles Frederick William Ross, Toronto, Ont., Canada; University of Toronto Faculty of Medicine, 1909; aged 56; died, March 23.

Edward T. Bellean, Arthabaska, Que., Canada; Laval University Faculty of Medicine, Quebec, 1880; aged 84; died in March.

William C. Gilchrist, Orillia, Ont., Canada; Victoria University Medical Department, Coburg, 1888; aged 78; died, March 13.

James Bowers Bell, Greeneville, Tenn.; Vanderbilt University School of Medicine, Nashville, 1894; aged 73; died, March 30.

Edmund C. Van Dusen, Athens, N. Y.; University of the City of New York Medical Department, 1885; aged 80; died, March 19.

Fred Elliott Hobbs, St. Louis; Marion-Sims College of Medicine, St. Louis, 1898; aged 66; died, May 12, of heart disease.

Frank X. Langeller, Montreal, Que., Canada; Baltimore University School of Medicine, 1893; aged 69; died, April 11.

James Gault McKee, Elk Lake, Ont., Canada; Trinity Medical College, Toronto, 1892; aged 73; died, March 1.

Charles Leslie Taylor, London, Ont., Canada; Trinity Medical College, Toronto, 1900; aged 61; died, April 6.

Edgar Duff Burnett, Anchorage, Ky.; Hospital College of Medicine, Louisville, 1904; aged 61; died, April 7.

John N. Wheeler, Chattanooga, Tenn.; Meharry Medical College, Nashville, 1902; aged 68; died, April 3.

Newton D. Guerry, Artesia, Miss.; Medical College of Alabama, Mobile, 1889; aged 74; died, April 14.

Sammel Richard Clemens, Toronto, Ont., Canada; Trinity Medical College, Toronto, 1897; died, April 3.

Ralph Wimentitz, Philadelphia; Medico-Chirurgical College of Philadelphia, 1899; aged 68; died, April 2.

Henry B. Stanley, Gainesville, Fla.; Southern Medical College, Atlanta, Ga., 1894; aged 73; died, April 8.

Isaiah E. Bee, Princeton, W. Va.; College of Physicians and Surgeons, Baltimore, 1890; died in March.

Euston Sisley, Calgary, Alta., Canada; University of Toronto Faculty of Medicine, 1888; died, March 20.

Bureau of Investigation

WORTHLESS (trademark) "CURES" DECLARED FRAUDULENT

Post Office Bars Yosmrite Nabona's "Indian" Stuff from the Mails

A picturesque career in quackery has been closed—or at least halted—by the issuance of two Post Office fraud orders against a "healer" calling himself variously "Dr. Yosmrite Nabona" and "Rev. Yomachee."

In April 1929 a Colorado Springs (Colo.) paper carried a full-page advertisement of Nabona's "Navajo Indian Remedies Co., Inc.," located in what was described as "The Navajo Indian village on the edge of the Black Forest" some 14 miles from Colorado Springs. In this advertisement Nabona, claiming to be known as "The Indian Doctor . . . all over the United States and in many foreign countries," declared that some \$60,000 had been spent in recent months and as much more would be spent in that year in developing the village; that "as many as 700 patients have been treated in a single day," and that several Navajo Indian families were associated with him, compounding his various "remedies," this task being "an adjunct of the modern laboratory" that he claimed to have there.

Nabona further declared that since the previous summer (1928) "a veritable path was beaten to his door in the forest." But prior to that time, if one could believe his story, he was

flat broke, having gone thru the Florida hurricane where his sanatorium was literally blown away and his real estate holdings in Miami and Miami Beach destroyed. However, he started over in the Pike's Peak region and after indifferent success for a time in Manitou hit upon the idea of locating in the Black Forest . . .

Nor did Nabona's colorful story stop there:

A soldier of fortune for many years, Dr. Nabona has had a wide and varied experience having traveled to practically every corner of the globe in his quest of adventure. Born of full blooded Navajo Indian parents on a government reservation at Red House, Ariz., he was left "on his own" at the age of 9 when his parents died. For a few years he lived with a German couple in the Panhandle of Texas. He removed with them to their home in Germany and there came under the notice of a prominent Berlin surgeon. The Indian youth applied his knowledge of bone setting learned from his Indian parents to reset a broken leg of the son of the surgeon. For this act the surgeon guaranteed his education in the medical schools of Berlin and Madgeburg, [sic] Germany. He was graduated from the medical department of the University of Berlin.

Just prior to the outbreak of the Spanish-American war Nabona came back to this country and when hostilities were declared joined the United States navy, seeing duty on the U. S. S. Baltimore under Admiral Dewey during the famous battle of Manila. Following the conclusion of the Spanish-American war his wandering saw him in service with the Boers in South Africa, as a member of the French Foreign legion in northern Africa, then a period in the Mexican navy which he joined at Guaymas. He later traveled in South America and finally in India.

It was in Calcutta that Dr. Nabona learned the arts of the native Hindu medicine men and their practices he still follows to a great extent. The doctor has the features of the native Navajo Indian but speaks perfect English with a decided German accent, the result of his long life with the Germans and education in Teutonic educational institutions.

With this alleged learned background Nabona might have been expected to take his place in the scientific world rather than to run a mere "patent medicine" business and a quack "sanatorium." But apparently he had his own reasons for choosing the latter, and that he prospered in it is evident, if one may believe his boast that "hundreds of orders are received daily by mail and telegraph, from patients all over the United States and foreign countries for the Navajo Indian Remedies."

Nor did Nabona hesitate to disclaim any unworthy motive:

We are not here to defraud the people [Italics ours—Ed.] but to build up a thriving industry comparable to many others of similar nature throughout the country.

The Post Office Department, however, held a different opinion of this matter. Nabona further claimed:

If I wanted to bunco the public as many think I am doing, I could have done it long ago. With a few mysterious rites and ceremonies, judicious use of paint and blankets, I could have cleaned up a million dollars in less than a year and left.

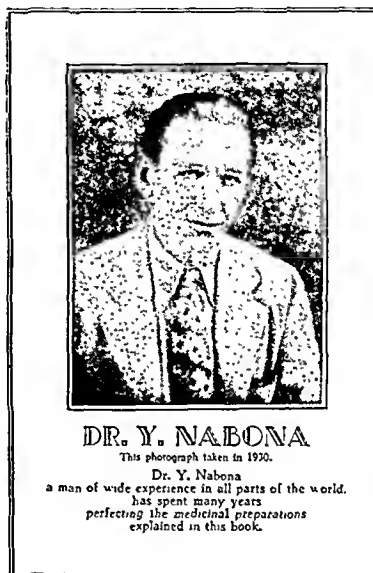
There were reports that Nabona sometimes "diagnosed" ailments by examining a drop of the "patient's" blood, which suggests that he was following the old Albert Abrams "elec-

tronic" fakery, as some observers charged and as will be brought out later. At any rate, he was said to have treated such serious diseases as cancer and tuberculosis. In a booklet that he put out under the title "A Treatise on Health and Happiness" he listed a long array of "cures," mostly designated as "Units," for various disorders but in another part of the booklet cautiously stated that "In order to comply with the regulations of the Food and Drug Administration . . . we shall not employ the following list of names of diseases in connection with our medicinal preparations." There followed a column of twenty-three ailments (plus "etc."), among them cancer and tuberculosis (as well as "consumption"). In other words, he seems to have "put over" at home what he later did not dare claim on his labels.

An exhaustive search through the records of the American Medical Association failed to reveal that Nabona had ever been graduated by or had even attended any medical school in this country or abroad or had been licensed to practice medicine in any state in the union on the basis of any diploma issued by either an American or a foreign medical college. They do show that when Nabona learned that the Colorado officials were about to investigate his activities he attempted to

obtain a license to practice medicine in that state by producing an alleged diploma which he claimed to have received in 1896 from the University of Berlin. A photostat of this "diploma" was translated by an expert, who pronounced it to be spurious, and shortly afterward the University of Berlin reported that it had never issued a diploma to Nabona in the period from 1896 to 1910 or even enrolled him as a student, so far as it could find.

Although the Colorado authorities in 1929 also turned down Nabona's application for a license to conduct his "sanatorium," it was said that he continued his activities around



Reproduced from one of Nabona's booklets.

Colorado Springs for several years. In March 1932 Nabona advertised in a Pueblo, Colo., paper that he had located in Long Beach, Calif., and would treat his Colorado patients by mail, the Colorado courts having taken "everything" from him for alimony and attorneys' fees. The California authorities reported that Nabona had various diplomas exhibited on his walls at Long Beach. One was from the "College of Divine Metaphysics, Indianapolis" dated Jan. 15, 1932, conferring on him the degree of "Doctor of Metaphysics," and another from the same institution giving him the degree of "Doctor of Psychology." The report further stated that Nabona claimed that these diplomas cost him \$150.

There was also a "duplicate" certificate from the Illinois College of Chiropody, certifying that Nabona had attended a course of lectures and a clinic from Aug. 23 to Sept. 3, 1920. Another document on exhibit appeared to be a diploma from the "Universitat von Berlin" (University of Berlin) dated December 1896, and supposedly conferring on Nabona the degree of "Doctor of Medicine and Massage." This was the diploma that had previously been declared spurious by the Colorado authorities when he attempted to obtain a license to practice in that state. Again, there was a "Certificate of Dissection, Department of Anatomy, National College of Chiropactic, Chicago." Finally there was a photograph of Albert

Abrams' class of 1923, showing Nabona as No. 23 in the class and giving his address as Sarasota, Fla. On his desk Nabona had a booklet calling him "Dr." The California authorities felt that his unwarranted use of this title was the only thing they could legally object to, particularly as Nabona apparently thought it expedient to comply with the state laws before starting business in Long Beach. They warned him, however, to discontinue using the title "Dr." and to remove it from all copies of his booklet.

In July 1933 a Denver paper was quoted as saying that Nabona had recently been arrested in Arizona and was to be deported on the ground that he was not an Indian but a German and had entered this country illegally. In June 1934 practically the same information came from Washington, D. C., but apparently the deportation proceedings were dropped. In July of that year Nabona sent out a letter over his signature, on the letterhead of the Navajo Industries Co., on which the Long Beach, Calif., address was crossed out and a postoffice box in Washington substituted. In this letter, addressed to a woman in Illinois, Nabona stated: "I am here on business and will be for some time." He went on to tell the woman that he "would not advise an operation" in her case "as the same will always come back" and suggested instead that she "send for two Units for your condition, the same is a two months treatment and the price is \$4.00." Thus it appears that even while under the scrutiny, if not actually in the custody, of the government, Nabona was still promoting his quackery.

About this time the government also commenced action against Nabona through another agency. The Department of Agriculture seized in interstate commerce quantities of "Navajo Indian Herbal Teas" that had been shipped by Navajo Industries Co., Inc., and Paul Anacker, alias Dr. Yosemite Nabona, on or about March 28, 1933. It was charged that the labels bore false and fraudulent claims. Analyses by government chemists were said to reveal that the various products consisted chiefly of cut dried herbs, essentially as follows: For asthma, elder flowers and coltsfoot; for "hardening of the arteries," yarrow and horsetail; for neurasthenia, camomile, lavender and mint; for stomach catarrh, yarrow, elder, camomile and mint, and the one designated loosely for "stomach trouble" was essentially fenugreek and aloe.

On Nov. 21, 1934, a jury found the defendants guilty on all counts and the court imposed a fine of \$200 against the Navajo Industries Co., Inc., and \$200 against Yosemite Nabona (alias Paul Anacker) on one count of the information, arresting judgment on the remaining five counts. On December 5, Nabona was placed on probation for two years on condition that he pay the fine within that period.

Shortly afterward (Jan. 20, 1935) the United States Department of Agriculture issued a release to newspapers on this case, reading as follows:

Paul Anacker, better known to swindled thousands as Dr. Yosemite Nabona, who "adopted" himself into the Navajos of Colorado, is in the toils of the law again. He was fined \$200 in the Federal court at Los Angeles, Calif., recently. In default of fine, he was remanded to jail. Operating from Long Beach, Calif., where his outfit was called "Navajo Industries, Inc.," and formerly from Colorado Springs, Colo., where he was known as the "Navajo Indian Remedies Co., Inc." Anacker had shipped various herbs, powders, pills, and liquid medicines which were in violation of the Federal Food and Drugs Act.

Investigation by Federal inspectors prior to the trial had indicated that "Dr. Nabona," who posed as an American Indian, was in reality a German by birth, and that he sent money at fairly regular intervals to a person, Frieda Anacker, in Germany. Although he listed in his advertising booklets a hundred diseases, including Bright's disease, pneumonia, syphilis, arthritis, epilepsy, paralysis and tumors, "Doctor" Nabona's sole claim to diagnostic and professional ability rested upon a "diploma" purporting to come from the University of Berlin, which, when translated, proved to be a midwife's certificate.

Before his case came to trial, Anacker's trail had led across the country and back. He changed his place of business from his original location at Colorado Springs, Colo., to Los Angeles, but the earthquake of March 1933 interrupted his prosperity there. He went to Tucson, Ariz. He was later arrested at El Paso, Tex., on suspicion of illegal entry, but was released. In an attempt to vindicate himself, he visited the Indian Bureau and the Department of Labor in Washington, D. C., and then camped for several weeks at a tourist camp near Berwyn, Md., selling Indian wares and his own medicines. There he was again arrested and returned to California for trial.

But though it is reported that Nabona lay low for a while after this prosecution it was to be expected that he would

bob up again with some fakish scheme. When he did, still another government agency, the Post Office Department, began to investigate him on finding that he had been operating since 1936 under two new names, Ajna Indian Herb Co. and Ajna Indian Preparations, at Hot Springs National Park, Ark. The trademark "Worthless," which they used on their mail-order nostrums, presumably represents unconscious humor and recalls the Minnesota woman who years ago put out something she called "Humbog Oil."

The Post Office memorandum which recommended that a fraud order be issued against Nabona's outfit brought out that though Nabona represented his products as being "herbal" mixtures and actual Indian remedies, some of them were, in fact, composed of milk sugar and small amounts of mineral substances, and all were purchased from pharmaceutical concerns in New York and Missouri. It was shown in one case that an individual claiming to have a femoral hernia sent Nabona an order for a treatment on the strength of a testimonial that Nabona had published on a similar case. The man made it clear that he did not want the treatment *unless* it would heal his hernia. Nabona accepted his money and sent the "treatment," but his letter as quoted in the memorandum more or less dodged the question of a *cure*. Government chemists reported that the tablets Nabona sent the man were essentially milk sugar and small traces of minerals including phosphorus, chloride, iron, sodium, potassium and arsenic. And this mixture, according to one published testimonial, was supposed to have cured a hernia! Further, the government brought out that the thing was essentially identical with some tablets that Nabona sent out, with a herbal mixture of tansy, strawberry and huckleberry leaves, as a remedy for diabetes! Almost identical tablets were sent out by Nabona for high blood pressure. There were also some other nostrums in the category.

The Post Office memorandum charged that the sale of Nabona's products through the mails constituted a fraud and recommended that they be debarred. Nabona neither appeared at the hearing to defend himself nor sent any one to represent him. On July 24, 1939, a fraud order was issued against "Dr." Yosemite Nabona, Ajna Indian Herb Co., Ajna Indian Preparations and their officers and agents as such.

But Nabona, apparently hoping to outsmart the Post Office, moved to Milwaukee, adopted the name "Rev. Yomachee" and again engaged in the activities that had brought on the order against his Arkansas business. He even admitted to one inquirer that the preparations he was sending out from Milwaukee were the same as those he had sold from Arkansas and solicited an order for his "rupture cure" tablets. Consequently on Sept. 29, 1939, a supplementary fraud order was issued to cover the name "Rev. Yomachee."

Thus far Nabona's record in quackery! Would it be surprising if he were to bob up again with the same old frauds but under still another trade style?

MISBRANDED "PATENT MEDICINES"

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

[EDITORIAL NOTE.—The abstracts that follow are given in the briefest possible form: (1) the name of the product; (2) the name of the manufacturer, shipper or consigner; (3) the composition; (4) the type of nostrum; (5) the reason for the charge of misbranding, and (6) the date of issuance of the Notice of Judgment—which is considerably later than the date of the seizure of the product and somewhat later than the conclusion of the case by the Food and Drug Administration.]

Dormalgin.—Lawson M. Luth, Darien, Conn. Composition: In each tablet approximately 2 grains of aminopyrine and three-fourth grain of a barbituric acid derivative. For rheumatism, gout, lumbago, sciatica, neuritis, painful menstruation and toothache. Fraudulent therapeutic claims.—[N. J. F. D. 30782; January 1940.]

E E Powders.—E E Medicine Co., Greenville, S. C. Composition: 4.99 grains of acetanilid per powder. Misbranded because labeled to contain only 4 grains of acetanilid per powder.—[N. J. F. D. 30881; January 1940.]

Hed Klear.—Van Patten Pharmaceutical Co., Chicago. Composition: Volatile oils including eucalyptus and menthol, with grain alcohol, isopropyl alcohol, acetone and water. Fraudulently represented as a relief for head colds, rhinitis, sinus irritation, hay fever and nasal catarrh.—[N. J. F. D. 30879; January 1940.]

Menestrex.—Rex Laboratory, Nashville, Tenn. Composition: Quinine sulfate (3.8 grains) and potassium permanganate (0.8 grain) per capsule. Fraudulently represented as a menstrual regulator.—[N. J. F. D. 30777; January 1940.]

Peranol.—Peranol Products, Chicago. Composition: Volatile oils including eucalyptus, camphor and menthol, with about 21 per cent of alcohol. For hay fever, nasal catarrh and rose fever. Fraudulent therapeutic claims.—[N. J. F. D. 30884; January 1940.]

Sodasal.—Sodasal Laboratories, Detroit. Composition: Aminopyrine (about 8 grains per fluid ounce), sodium salicylate (33.5 grains and 15 grains respectively, in two specimens), baking soda, sugar and water. Fraudulently represented as an effective alkaline treatment and a remedy for rheumatic pains, lumbago, uric acid and some other things.—[N. J. F. D. 30895; January 1940.]

Ung Nigrum.—U. N. Laboratories, Seattle. Composition (by percentages): Silver nitrate, 5.25, mercury, 3.35 and phenol, 1.68. Fraudulently represented as a remedy for burns, fresh or infected wounds, ulcers and infectious skin diseases.—[N. J. F. D. 30790; January 1940.]

U. N. Rectal Cones.—U. N. Laboratories, Seattle. Composition: Silver nitrate (0.015 Gm.), mercury (0.062 Gm.) and cocoa butter. Fraudulently represented as an effective treatment for internal hemorrhoids, fissures or rectal inflammation.—[N. J. F. D. 30790; January 1940.]

U. N. Vaginal Cones.—U. N. Laboratories, Seattle. Composition: Silver nitrate (0.1 Gm.), mercury (0.02 Gm.) and gelatin. For "pelvic inflammation, trichomonas and all vaginal infections." Fraudulent therapeutic claims.—[N. J. F. D. 30790; January 1940.]

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

RESUSCITATION OF SUBMERGED PERSONS

To the Editor:—A boy aged about 17 had been in the water between an hour and a half and two hours before the body was brought to the surface. Artificial respiration was started as soon as he had been placed on the bank, with the use of an H-H inhalator with carbon dioxide-oxygen mixture but with no respiratory excursion. Even froth from the mouth was not obtained. There were no obstructions that could be determined. I injected 1 cc. of solution of epinephrine hydrochloride directly into the heart with no response. As there was no respiratory exchange and considering the fact that he had been in the water so long and had not responded to the epinephrine hydrochloride, I pronounced him dead with no hope of resuscitation, after about twenty minutes. In the crowd which always gathers at such an event, some of the spectators criticized the fact that we did not continue longer, stating that they had known at resuscitation after three hours' immersion. I want to obtain data as to the length of time a person can be submerged and yet be resuscitated. It has always been my impression that no one has ever been revived who has been in the water more than thirty minutes. In another method of artificial respiration of which I have heard that is considered to be better than the Schafer prone method there is manipulation of the shoulders. I would appreciate any information you have on these questions.

Charles W. May, M.D., Pasco, Wash.

ANSWER.—Successful resuscitation of human beings has been reported to have been obtained after twelve, fifteen and twenty minutes and even from one-half to three hours from the time of initial submersion in water to the institution of resuscitative measures. The reliability of such reports, however, especially those recording the more prolonged periods, is subject to question. In the absence of actual timing by a watch or clock it is only natural, because of the confusion and anxiety incident to drowning, for observers to tend to overestimate the time.

The period after initial submersion during which resuscitation can successfully be applied will vary from case to case, depending on, among other things, the individual himself, the circumstances under which submersion occurred, whether he was able to take partial breaths of air, how much water was taken into the lungs and respiratory passages and, at least to some extent, the efficiency of the method of resuscitation employed. The power of an individual to remain under water without breathing varies considerably and is somewhat improved by practice. Ability to do so for a period of four minutes and forty-six and one-half seconds has been referred to (Resuscitation After

Drowning, Queries and Minor Notes, THE JOURNAL, Aug. 29, 1908, p. 779). In general, attempts to resuscitate persons seemingly dead from drowning are more successful with those who become unconscious immediately on falling into the water and with those in whom apparent death occurs with little struggle. This is because the effect of submersion in water depends on whether the individual remains conscious and attempts to breathe or whether, owing to syncope, shock, apoplexy, spasm of the glottis or the like, breathing ceases immediately, in which case little or no water will be taken into the lungs. Power of recovery from apparent death from drowning then is in inverse proportion to the amount of water and mucous froth in the air passages and to the penetration of the substance of the lung with water, which amount and penetration, in general, are proportional to the efforts made at self preservation (Taylor's Principles and Practice of Medical Jurisprudence, ed. 9, edited by Sydney Smith, with revision of legal aspect by W. G. H. Cook, London, J. & A. Churchill, Ltd., 1934, vol. 1, p. 612). If the air passages are filled with water and froth and the lungs are waterlogged, resuscitation will be impossible no matter how soon the body is removed.

Observations on dogs by the Medico-Chirurgical Society of England (Report on Suspended Animation, *M.-Chir. Tr.*, 1862, p. 449. Taylor's Principles and Practice of Medical Jurisprudence, vol. 1, pp. 609, 611-612. Glaister's Medical Jurisprudence and Toxicology, ed. 6, edited by John Glaister, Baltimore, William Wood & Co., 1938, chapter 7, pp. 149-150) showed that complete submersion for a minute and a half was fatal provided respiratory effort was made while submersion was complete, but when respiration was entirely suspended under water simple deprivation of air could be maintained for four minutes without necessarily fatal results. Pol N. Coryllos (Mechanical Resuscitation in Advanced Forms of Asphyxia: A Clinical and Experimental Study in the Different Methods of Resuscitation, *Surg., Gynec. & Obst.* 66:698 [April] 1938, p. 712), after similar observations, reported that the whole phenomenon of asphyxia by submersion "from its beginning to the death of the animal presented a remarkably constant duration of four to five minutes." He demonstrated four distinct phases of asphyxia by drowning, each of which lasted about one minute: (1) initial apnea, (2) dyspnea, (3) terminal apnea characterized by arrest of respiration, drop of blood pressure and disappearance of reflexes and muscular tonus, and (4) phase of arrest of the heart, characterized by rapidly progressing weakness of cardiac contraction and arrest of the heart. He found that resuscitation, while still easy when submersion was interrupted at the beginning of the third phase of asphyxia, became increasingly difficult as the end of that phase was approached. In the case of one dog, submersion was interrupted at the end of the third phase but asphyxia progressed to the fourth phase, the heart stopped, and resuscitation by artificial respiration and bronchoscopic intratracheal insufflation was unsuccessful. Another dog under the same conditions gave no response to artificial respiration but the animal was brought back to life by a mechanical resuscitator within twenty seconds after its application.

As a general rule in human beings asphyxia supervenes from one to two minutes after submersion or, at the most, three or four minutes, and death characterized by cessation of the heart usually occurs before the expiration of five or six minutes, but life may be considerably prolonged if from any cause water has been prevented from entering the lungs (Dolley, D. H.: On Resuscitation, *Univ. Missouri Bull., M. Ser.* 1:5 [Oct.] 1913, on pp. 12-13. Smith, A. J., and Lucke, B. H., in *Legal Medicine and Toxicology by Many Specialists*, ed. 2, edited by Peterson, Haines and Webster, Philadelphia, W. B. Saunders Company, 1923, vol. 2, p. 380). Smith and Lucke state that the entire process may be completed in three or four minutes or may be prolonged to two or more times this period. They (*Legal Medicine and Toxicology by Many Specialists*, p. 386) also state that while instances of successful resuscitation have been recorded after submersion for twenty or thirty minutes there is usually little hope of success after submersion for more than four or five minutes; and where asphyxiation has been general and much water has entered the respiratory passages in the wild struggle for life, attempts to revive almost always fail. It is possible for ten or twelve minutes to elapse during "drowning," as partial breaths of air may be taken by the person before he goes down the traditional third time (Drowning and Resuscitation, Queries and Minor Notes, THE JOURNAL, Feb. 25, 1939, p. 764). It is probable that absolutely complete submergence for ten minutes, and perhaps less, may so far impair the respiratory center or bring the heart so completely to a standstill as to make the possibility of resuscitation unlikely, and when persons are resuscitated after

being in the water from fifteen to twenty minutes it is probable that submergence was incomplete and that some partial breaths of air were obtained (Drowning and Resuscitation, *Queries and Minor Notes*, *THE JOURNAL*, Oct. 18, 1924, p. 1263; Resuscitation, *ibid.*, Jan. 2, 1926, p. 58). In connection with persons overcome by mine gases it has been reported that deprivation of oxygen for about ten minutes may injure irremediably some of the most essential nerve cells of the brain (Cannon, W. B.; Crile, G. W.; Erlanger, Joseph; Henderson, Yandell, and Meltzer, S. T.: Report of the Committee on Resuscitation from Mine Gases, Technical Paper 77, Department of the Interior, Bureau of Mines, 1914, p. 7). Albert H. Miller (Resuscitation, *Rhode Island M. J.* 15:39 [March] 1932, p. 42) states that resuscitation, to be efficient, must be begun within half an hour from the time when the heart beat ceases. He gives the following periods of resistance to entire deprivation of oxygen for various tissues of the body: cerebrum eight minutes, cerebellum thirteen minutes, medullary centers from twenty to thirty minutes, spinal cord from forty-five to sixty minutes, sympathetic ganglions one hour and mesenteric plexus three hours. Gordon Bates, R. E. Gaby and Wills MacLachlan (The Need for Prolonged Artificial Respiration in Drowning, Asphyxiation and Electric Shock, *Canad. M. A. J.* 39:120 [Aug.] 1938) state that "it is possible for a person to have been under the water for up to half an hour and still live." Their opinion is based on, among other cases, three reported by Canadian physicians and one reported by the American Red Cross, in which resuscitation was successful after the body had been in water respectively for thirty minutes, from twenty to thirty minutes, fifteen minutes and from thirty-two to thirty-five minutes. But according to Taylor's Principles and Practice of Medical Jurisprudence (vol. 1, p. 612) "there can, however, be no question but that the earlier or more loosely recorded cases of recovery after submergence for more than seven to eight minutes involve a fallacy somewhere (possibly some air was drawn down in the clothes or hair of a woman or in the sail of an overturned boat, etc.)."

ATTACKS OF PARA-UMBILICAL PAIN

To the Editor:—A white boy at 7, moderately well nourished, has been having attacks of colicky pain in the umbilical region every few months since the age of 4. These attacks last from a few minutes to a few hours and he has accompanying vomiting. No elevation of temperature is present. During the attacks the umbilical region is quite tender. He has had various diagnoses by varying physicians. Four months ago when I was first called he was in the midst of the longest attack he had had up to that time, the attack having lasted about twenty-four hours. The condition was as described. Exploratory laparotomy disclosed two intussusceptions present in the lower ileum about 3 feet from the ileac junction, the intussusceptions being about 2 feet apart. Reduction was simple. The appendix was normal but was removed. The rest of the small bowel was normal. There was moderate enlargement of the mesenteric lymphatic glands but this was attributed to toxic absorption from the intestinal obstruction. Recovery from the operation was uneventful. Since the operation there have been about two attacks a month lasting a few minutes and one lasting six hours. When calcium gluconate was administered intravenously and atropine sulfate subcutaneously at the onset of the attack on two occasions, the attacks ceased immediately but the aforementioned medication given late in the attack has had no effect. Enemas and abdominal massage have no effect. The child is of rather a nervous type. The attacks usually come in the early evening or night and are more prone to appear following a strenuous day of play or excitement. At present he is taking phenobarbital in small divided doses and tincture of belladonna. A high caloric diet has been prescribed. Any suggestions you may be able to give me with regard to treatment of the attacks or in prevention will be greatly appreciated, as I have been able to find nothing relative to recurrent intussusception of the small intestine in the literature I have available. Dean J. Darius, M.D., Pine Ridge, S. D.

ANSWER.—Recurrent para-umbilical pain may be due to a number of intraperitoneal or retroperitoneal conditions. In young children, congenital anomalies of the small or large bowel frequently produce abdominal pain. A short mesentery may result in transient episodes of volvulus, but there is usually vomiting associated with the pain. A redundant sigmoid may kink or produce para-umbilical pain. Although an exploratory laparotomy failed to reveal any such anomaly in this patient, a complete gastrointestinal x-ray examination is indicated. Chronic recurrent intussusception may be due to tumors, peritoneal adhesions, Meckel's diverticulum, mesenteric cysts, or a ring of polyps in the ileum. The intussusception may be so mild that vomiting, a palpable tumor, and blood in the stools may all be absent. Diagnosis can be made only by careful examination of the bowel during an exploratory laparotomy. The extraperitoneal conditions most frequently causing abdominal pain include diseases of the lumbar vertebrae or of the genito-urinary tract or gallbladder. X-ray examination of the spine, urinalysis, and an intravenous pyelogram are indicated. If all these examinations are negative, the role of allergy must be considered as a possible explanation for para-umbilical pain.

OBESITY AND SCANTY MENSTRUATION AFTER MUMPS

To the Editor:—What would you advise in the way of treatment for the following case? A married woman aged 28, 5 feet 8 inches (173 cm.) in height, weighing 152 pounds (69 Kg.) had severe mumps, bilateral, in December 1938, with some lower abdominal pain. Following recovery her menstrual periods have been regular, of twenty-eight day type but the flow is scanty where previously it was abundant and lasted for from seven to nine days. Now the flow lasts only from one to two days. Also following her recovery from mumps she began gaining weight and has continued to gain in spite of being on a strict diet of 1,500 calories. She has gained 30 pounds (13.6 Kg.) since December 1938. There has been a progressive increase in the amount of fat about the pelvis over the trochanters with some increase over the upper arms and about the spine of the scapula. The remainder of her body appears free of excess fat. Physical examination reveals a temperature of 97 F., pulse 80 systolic, blood pressure 102, thyroid of normal size, basal metabolic rate normal (—2), urine and blood normal and blood sugar normal. General examination is otherwise negative except for the fat deposits described.

M.D., Minnesota.

ANSWER.—This woman apparently had bilateral oophoritis complicating mumps, which is probably of more frequent occurrence than has been recognized. There is no reason why this complication should not occur just as frequently in women as orchitis does in men with mumps. The fact that she menstruates every twenty-eight days is not a criterion of normal function. The decrease in the duration of menstruation of from seven to nine days to one to two days is evidence of decreased ovarian response or ovarian hypofunction.

The gradual gain of 30 pounds has been described as of girdle location except for the trochanteric obesity. Trochanteric padding is characteristic for ovarian hypofunction, especially after 28 to 30 years of age. The patient evidently has a combination of two types of obesity, the girdle type (hypopituitary) and the trochanteric (hypogonad). That she gains weight on a strict 1,500 calory diet is evidence that it is not due to excess intake of food and decreased output. The patient is not much overweight at present, for the average weight for a woman aged 28 and 5 feet 8 inches in height is approximately 142 pounds (64 Kg.). However, there is a possibility that she will continue to increase in weight if measures other than diet are not utilized. Since the physical and laboratory examinations are negative, it is reasonable to suppose that her condition is endocrine in nature.

The causative basis for the ovarian hypofunction may be (1) insufficient gonadotropic hormone of the anterior pituitary to stimulate normal ovarian response, (2) sufficient gonadotropic hormone but inability of the ovary to respond to normal stimulation, and (3) hypofunction of both the anterior pituitary and the ovary.

It seems reasonable to believe from the history of mumps that the condition has more of a hypo-ovarian basis than pituitary; the trochanteric obesity also favors this deduction. However, if the patient really has some pituitary type obesity, then one must bear this in mind.

Without having seen or examined the patient, the best suggestion for treatment that one can give is the administration of 2,000 international units of estrone (theelin) in oil intramuscularly every other day for three weeks following cessation of menstruation. Then discontinue the medication to allow menstruation to occur. Repeat for three or four months. The patient should not be promised too much; if the ovaries are permanently damaged she will probably need substitutive therapy irregularly until after the climacteric.

If the posterior pituitary hypofunctions (the posterior pituitary is probably the gland involved in pituitary obesity) it may be necessary later to administer proper dosages of solution of posterior pituitary.

There is also the possibility of more generalized glandular hypofunction developing, especially involving the thyroid.

GRANULOMA INGUINALE

To the Editor:—What might one expect from curettage of the lesions of granuloma inguinale? This procedure has no doubt been employed in the past and presumably without benefit or it would be in common use. My reason for asking is that I am trying curettage with medicated dressings and don't wish to subject patients to curettage alone as controls, if this can be avoided. Please give me any available information or references.

M.D., Florida.

ANSWER.—Little benefit should be expected from curettage of the lesions of granuloma inguinale. It is more likely to be harmful than beneficial. Careful cleansing and sterile dressings are indicated. Antimony compounds are said to be specific (McGlinn, J. A.: *Ann. J. Obst. & Gynec.* 12:665 [Nov.] 1926). A 1 per cent boiled solution of sodium and potassium antimony tartrate is given intravenously. The first dose should be from 0.01 to 0.02 Gm. Thereafter from twelve to fifteen doses are given on alternate days in increasing doses up to

0.12 or 0.15 Gm. Diathermic fulguration has been used by F. G. Greenwood (*Brit. J. Radiol.* 4:488 [Oct.] 1931). Hazen, Howard, Freeman and Scull (*THE JOURNAL*, Oct. 22, 1932, p. 1410) say "while irradiation is reasonably effective, the most certain results are obtained by a freshly prepared solution of antimony and potassium tartrate or injections of ampules of antimony thioglycollamide." Fuadin N. N. R. (a trivalent compound of antimony and sodium) is considered by Williamson, Anderson, Kimbrough and Dodson (*THE JOURNAL*, May 27, 1933, p. 1671) to be a "safe and rapid specific for granuloma inguinale."

BED ROCKING AND HEAD BANGING IN CHILDREN

To the Editor:—I have observed a boy since he was 6 months old, two and one-half years ago, who is mentally and physically well developed but who started at that time to get on his hands and knees and rock back and forth while in bed. Later he continued with such force that the bed made a great deal of noise. He also bumps his head on the headboard but doesn't seem to be injuring himself. This habit occurs until he is falling asleep. Of course this is annoying to the parents and I suggested to the mother first to change the bed. This didn't help because the child still insisted on rocking despite the change. I later suggested putting the child to sleep on his mattress on the floor in order to prevent excess movement. However, the child was put back into his bed because of the changed thermal condition of the room. He showed a definite improvement, rocking and bumping only occasionally. After the change of the temperature and weather conditions permit, I shall insist on putting the child back on the floor at least for six more months. The mother's second child was delivered by me six months ago, in every respect a normal boy. This child, now 6 months old, has started to get on his knees and hands and rock back and forth also. He seems to enjoy this process too. The mother is seeking my advice on how to prevent this annoying habit developed by her older child. My questions are: Did I advise the mother right regarding the breaking of this habit formed by the older child? What could you suggest to prevent the developing of this habit by the second child?

M.D., Illinois.

ANSWER:—There seems to be no good reason why any effort should be made to break the habit of bed rocking or head banging. Just why these habits develop is not known. It is probable that the infant gets some degree of pleasure from them.

There is no particular method that can be suggested for the prevention of the development to this type of habit. It is probably more liable to develop in so-called nervous infants than in more phlegmatic children. Ignoring the habits completely usually causes their disappearance.

It probably is not advisable to have the child sleep on a mattress on the floor. The movement in the bed will do no harm. The bed may be fixed so that it will not shake. This will prevent noise and may serve somewhat in helping to overcome the habit.

AMENORRHEA

To the Editor:—A well developed girl of 20 years, weighing 120 pounds (54 Kg.), began to menstruate at 14. The periods were regular for a time, then missed a month or more at a time, and finally stopped three years ago without any symptoms. Treatment has been administered since June at weekly intervals, consisting of twelve injections of uroginin with tablets by mouth, five injections of 1 cc. each of antuitrin, about thirty-six capsules of theelin and about forty thyroid tablets. There has been no response thus far. The breasts are well developed. There is an ordinary amount of pubic hair. The vaginal tract seems fairly well developed. The vagina is somewhat small, the uterus not infantile.

J. W. Mombert, M. D., Hudson, N. Y.

ANSWER:—There is rarely any need to treat secondary amenorrhea unless a woman has tried and has failed to have children. In such a case it is generally assumed that the amenorrhea is an indication of the absence of ovulation. However, it does happen occasionally that some women who do not menstruate and have an intact uterus do ovulate in spite of the absence of uterine bleeding. The way to determine the presence or absence of ovulation in cases of amenorrhea is to perform an endometrial biopsy once every two weeks. If microscopic study of the tissue obtained reveals a secretory endometrium, this is evidence of ovulation. A woman may ovulate at certain times and not at others. If three or four successive endometrial biopsies fail to reveal a secretory endometrium, ovulation is absent. In such cases one may try to stimulate ovulation by means of equine gonadotropic therapy.

This patient should have one or more basal metabolism studies made. If the rate is low, thyroid therapy should be instituted. Thyroid extract alone in proper doses may bring about a return of the menses. If the basal metabolic rate is normal and the patient's general health is good, she should be told that there is no need to restore her monthly periods at the present time. If, however, she insists, the simplest type of therapy is to give 50,000 international units of estrogen

hypodermically twice a week for three weeks. Generally after this medication bleeding sets in. Nearly always, to produce further bleeding, more hypodermic doses of estrogen must be given.

RECURRENCE IN PITYRIASIS ROSEA

To the Editor:—A patient with pityriasis rosea states that the same condition was diagnosed eight years ago. How often does pityriasis rosea occur more than once in the same individual, and could you give me a few references to the literature on this subject?

J. T. Marr, M.D., Sterling, Kan.

ANSWER:—The clinical picture in pityriasis rosea is typical and is vividly described in the standard textbooks on dermatology. Until recently the feeling among dermatologists was that recurrence of the disease is rare, but occasionally dermatologists have seen bona fide cases of this condition a second time in individuals whom they have previously treated for pityriasis rosea. For references see Rulison, R. H.: Pityriasis Rosea: A Few Simple Facts, *Arch. Dermat. & Syph.* 7:163 (Feb.) 1923. Ormsby, O. S.: A Practical Treatise on Diseases of the Skin, ed. 4, Philadelphia, Lea & Febiger, 1934, page 285, quotes von Szabóky: Beiträge zur Aetiologie der Pityriasis rosae, *Monatsh. f. prakt. Dermat.* 42:495, 1906, as stating, among other things, that in 50 per cent of 119 cases of this disease there was a return of symptoms in only one. A recent article on pityriasis rosea is that by Niles, H. D., and Klumpp, Margaret M.: Pityriasis Rosea: Review of the Literature and Report of 219 Cases, in Thirty-Eight of Which Convalescent Serum Was Used, *Arch. Dermat. & Syph.* 41:265 (Feb.) 1940.

POISON IVY

To the Editor:—Many years ago I was affected with poison ivy on both hands which spread rapidly up my arms in the usual way. After little relief from the usual methods of treatment, I covered both arms to the elbows with collodion. Relief was instantaneous and in due time the inflammation stopped. I have advised this treatment often to others, always with complete success, consisting of quick relief, stoppage at spreading and rapid cure. Most other methods advised require that the patient stop work if the method is to be effective.

Somuel B. Woodward, M.D., Worcester, Mass.

HEREDITARY FACTOR IN FACIAL PALSY

To the Editor:—In *Queries and Minor Notes* Dec. 16, 1939, page 2260, there was an inquiry from a New York physician who reported attacks of peripheral facial paralysis in a patient, the patient's father and his older brother. The question was whether there is a form of familial peripheral facial paralysis. The answer was "No hereditary factor in facial paralysis. . . . The disorder is so common that it might easily happen to affect several members of a family." Two facts do speak in favor of the assumption that there might be a constitutional hereditary component in the usual peripheral facial palsy: It occurs in members of the same family and it recurs in the same patient. Charcot first reported cases of facial palsy occurring in families. Neumann reported facial palsy in three sisters together with the child and grandchild of one of them. In addition he collected forty-one similar observations. Despaigne reported twenty cases and reports of further cases were published by Rauzier, Rassie, Sarbá, Auerbach, Weber, Simmonds, Oppenheim, Frey, Maebius, Bernhardt, Hoffmann, Hatschek, Huebschmann, Donath, Lannoi, Mendel and Arkwright. Some of these authors stressed that in the hereditary cases the palsy resulted from trivial causes. The apparent presence of some constitutional factor in facial palsy is further evidenced by its recurrence in the same patient. Mouriquand and his co-workers reported the case of a girl who had eight attacks of facial palsy in two years. Remark found recurrence in 3 per cent of the cases, Bernhardt in 7.2, Sossinka in 3, Fuchs in 5.7, Peters in 6, Waterman in 2.7, Merwarth in 7.7 and Petit in 6. Of special interest in the problem of a hereditary factor in facial palsy are those cases in which palsy occurred and recurred in members of the same family. Such cases were reported by Rosenthal and by Johnson and Staesser. In contradistinction to Erb, most of the authors (Charcot, Oppenheim, Eulenburg, Neumann, Alexander, Wexberg, Mendel, Huebschmann, Hoffmann, Urbantschitsch and others) assumed that some hereditary constitutional predisposition may be responsible for the occurrence of facial palsy. Nothing definite is known about the nature of this predisposition. Sarbá, Wassermann, Marfan and Delille, Despaigne, Phylip, Jendrassik, Higier, Kelly and Moskowitz assumed that an inherited anomaly or a narrowing of the fallopian canal were responsible. Others spoke of a hereditary vulnerability of the nerves that makes them susceptible to otherwise harmless noxae. Julius Bauer stated that there are "neuropathic-arthritic constitutional anomalies" in families with facial palsy. Kinnier Wilson pertinently summarized the problem in saying "To be compelled to resort to some form of 'predisposition' (anatomical or otherwise) is unsatisfactory but perhaps inevitable."

In this connection it is of interest to note that in other forms of mononeuritis, e.g., of the radial nerve (Mendel), of ramus superficialis of the radial nerve (Wartenberg), of nervus cutaneus femoris lateralis (Goldstein, Buchawsky) and even in crutch palsy (Wexberg) a constitutional inherited component has been assumed. It was Oppenheim who maintained that some individuals have an inherited tendency to acquire neuritis. Foerster agreed with Oppenheim in assuming that even for the occurrence of a neuritis after local trauma there must be some endogenous disposition.

Robert Wartenberg, M.D., San Francisco.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

Examinations of state and territorial boards were published in THE JOURNAL, June 22, page 2495.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: Parts I and II, Sept. 11-13. Part III, June or July, to be given in medical centers having five or more candidates desiring to take the examination. Exec. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: December 1940. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written*. October 21. Applications must be on file not later than September 1. Sec., Dr. William S. Middleton, 1301 University Ave., Madison, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: Chicago, Oct. 18-19. Sec., Dr. R. Glen Spurling, 404 Brown Bldg., Louisville, Ky.

AMERICAN BOARD OF OPHTHALMOLOGY: *Oral*. Cleveland, Oct. 5. Sec., Dr. John Green, 6830 Waterman Ave., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: *Oral and written*. New Orleans, January 1941. Final date for filing application is November 15. Sec., Dr. Fremont A. Chandler, 6 N. Michigan Ave., Chicago.

AMERICAN BOARD OF PEDIATRICS: Memphis, Tenn., Nov. 17, preceding the annual meeting of the American Academy of Pediatrics. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF SURGERY: *Written*. Part I. Various centers, October 21. Final date for filing application is September 15. Sec., Dr. J. Stewart Rodman, 225 S. Fifteenth St., Philadelphia.

AMERICAN BOARD OF UROLOGY: *Oral and Written*. Chicago, February 1941. Applications must be on file not later than Oct. 15. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Connecticut March Report

Dr. T. P. Murdock, secretary, Connecticut Medical Examining Board, reports the written examination held at Hartford, March 12-13, 1940. The examination covered nine subjects and included seventy questions. An average of 75 per cent was required to pass. Thirty candidates were examined, seventeen of whom passed and thirteen failed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
Harvard Medical School.....	(1929) 75,*	(1938)	81.7
Tufts College Medical School.....		(1937)	76.8
Washington University School of Medicine.....		(1938)	79.5
University of Pennsylvania School of Medicine.....		(1938)	75.1
University of Vermont College of Medicine.....	(1938) 75.2,	(1939)	76.9
Queen's University Faculty of Medicine.....		(1939)	76.5
University of Toronto Faculty of Medicine.....		(1932)	78.5
der Universität Wien.....	(1927)	75, 75.4*	
der Tudományegyetem Orvostudo.....	(1937)	75.9	
Studi di Bologna. Facoltà di.....	(1937) 75.3,	(1938)	75
Napoli Facoltà di Medicina e.....	(1936) 75,	(1937)	75
Chirurgia.....	(1938)	75	
Université de Genève Faculté de Médecine.....	(1938)	75	
School	FAILED	Year Grad.	Number Failed
George Washington University School of Medicine.....	(1938)	1	
Tufts College Medical School.....	(1937)	1	
Medizinische Fakultät der Universität Wien.....	(1936)	1	
Eberhard-Karls-Universität Medizinische Fakultät, Tübingen.....	(1922)	1	
Friedrich-Wilhelms-Universität Medizinische Fakultät, Berlin.....	(1926), (1936)	2	
Ludwig-Maximilians-Universität Medizinische Fakultät, München.....	(1923)	1	
Thüringische Landesuniversität Medizinische Fakultät, Jena.....	(1919)	1	
Universität Heidelberg Medizinische Fakultät.....	(1920)	1	
Magyar Királyi Pázmány Petrus Tudományegyetem Orvosi Fakultása, Budapest.....	(1937)	1	
Regia Università degli Studi di Bologna. Facoltà di.....	(1937)	1	
di Roma. Facoltà di.....	(1937)	1	
Fakultät.....	(1936)	1	

Nineteen physicians were successful in the oral examination held for endorsement applicants at Hartford, March 26. The following schools were represented:

School	LICENSED BY ENDORSEMENT	Year Endorsement Grad.	of
Yale University School of Medicine.....	(1937) N. B. M. Ex.,*		
(1937) N. B. M. Ex.			
State University of Iowa College of Medicine.....	(1936)	Iowa	
Tulane University of Louisiana School of Medicine.....	(1932)	Louisiana	
Medical School of Maine.....	(1914)*	Maine	
Boston University School of Medicine.....	(1931), (1938)*	N. B. M. Ex.	
Tufts College Medical School.....	(1936)*	N. B. M. Ex.	
University of Minnesota Medical School.....	(1935)	Minnesota	
Albany Medical College.....	(1932) N. B. M. Ex.		

Cornell University Medical College.....(1937) N. B. M. Ex.
Long Island College of Medicine.....(1936, 2)* New York
University and Bellevue Hospital Medical College.....(1932)* New York
Syracuse University College.....New York
Temple University School of.....Penna.
University of Tennessee Coll.....Tennessee
Queen's University Faculty of Medicine.....(1931) New York
* License has not been issued.

Connecticut March Homeopathic Examination

Dr. Joseph H. Evans, secretary, Connecticut Homeopathic Medical Examining Board, reports the written examination held at Derby, March 12-13, 1940. The examination covered seven subjects and included seventy questions. An average of 75 per cent was required to pass. One candidate was examined and passed. The following school was represented:

School	PASSED	Year Grad.	Number Passed
Hahnemann Med. College and Hospital of Philadelphia (1939)			1

Book Notices

Obstetrics and Gynecology. By the Departmental Staff of the University of Chicago and Other Contributors. Edited by Fred L. Adair, M.A., M.D., F.A.C.S., Mary Campau Hyerson Professor and Chairman of the Department of Obstetrics and Gynecology, in the University of Chicago, Chicago. Volumes I and II. Cloth. Price, \$20 per set. Pp. 1,000, with 373 illustrations; 1,031, with 314 illustrations. Philadelphia: Lea & Febiger, 1940.

The two volumes prepared by Dr. Adair and the other members of the department of obstetrics and gynecology at the University of Chicago are the culmination of an enormous task. The editor states that this book "is not intended to be a work of reference but it is primarily designed for the medical student and the practitioner of obstetrics and gynecology." The inclusion of a large amount of historical data, numerous charts and tables and a huge amount of statistical information indicates that this book does serve as a reference book as well as a textbook. In chapter x, which contains thirty-three pages, there are twenty-four statistical tables and ten statistical charts. In addition to brief historical introductions in many chapters there is a history of maternal care which occupies twenty-three pages and a history and development of gynecology which takes up nine pages.

The allotment of space to the various subjects is uneven. Little space is devoted to common obstetric and gynecologic operations with which medical students and certainly practitioners should be familiar, but seven chapters with a total of 140 pages are devoted to the newborn in addition to the twenty pages given over to the chapter of intra-uterine growth. In spite of the editor's attempt to avoid repetition and lack of coordination, a number of obstetric and gynecologic subjects are discussed at length in more than one part of the same volume or in both volumes. Thus the subject of menstruation is taken up on pages 240-244 and on pages 491-494 in the same volume. The same neoplastic diseases are discussed extensively in the two volumes. The subject of postpartum hemorrhage is taken up separately from the disorders of the third stage of labor.

Likewise the distribution of the illustrations is unbalanced and occasionally confusing. A large number of illustrations are devoted to unimportant material and, on the other hand, none could be found for certain important subjects in obstetrics and gynecology. Thus, in addition to the large number of figures devoted to statistical charts throughout both volumes there are twenty-five illustrations for the subject of roentgenology in obstetrics and gynecology, seven for tuberculosis of the genitalia (but only one for gonorrhea of the genitalia), nine for the LeFort operation, seventeen showing only the external genitalia, sixteen depicting the breasts, an enormous number of monsters and 107 illustrations in the chapter on the relationship of pediatrics to obstetrics (140 pages). On the other hand, there are no illustrations showing internal version (there are four for external version), no illustrations showing packing of the uterus for postpartum hemorrhage, none on how to make an abdominal diagnosis in labor by means of the four "grips," none on how to take the external pelvic measurements or how to estimate and measure the pelvic outlet, none on how vaginal pessaries are to be used or even what such pessaries look like, none on the Rubin insufflation test and none on how to perform

a simple curettage, an abdominal hysterectomy or a vaginal hysterectomy. A few illustrations are duplicated in the two volumes (figures 329 and 330 in volume I are the same as figures 71 and 72 in volume II). Two of the three illustrations on hydatid mole are in the chapter on abortion in volume I and the third illustration is in the chapter on neoplastic diseases of the female genitalia in volume II.

There is an occasional error. In volume II (p. 868) is a list of mortality rates for the hysterectomies performed at the Chicago Lying-in Hospital. These are listed as follows: 167 complete abdominal hysterectomies with a death rate of 0.12 per cent, 416 incomplete abdominal hysterectomies, 0.002 per cent, and 180 vaginal hysterectomies, 0.11 per cent. The word "position" is used interchangeably with the word "presentation." The authors speak of "face position."

There is an extensive appendix which contains valuable information concerning dietetics, laboratory methods, vital statistics and comparison of weights, measures and temperatures. Likewise there is a long list of references occupying twenty-five pages. The index, which occupies thirty-six pages, is reprinted in both volumes, undoubtedly for convenience. The volumes are large.

An enormous amount of time and effort have been put into this elaborate work. It is well written in a style easy to read. The subjects of obstetrics and gynecology are fully covered, although not evenly distributed or illustrated. As shown in the list of contributors an appreciable proportion of both volumes was presumably written by young men and women who were instructors, residents and even interns at the Chicago Lying-in Hospital. Therefore many of the ideas expressed and much of the advice given by these contributors in the chapters they wrote are recommendations made by obstetric and gynecologic authorities consulted by these young obstetricians and not the fruits of their own experience, which of necessity must have been limited. The illustrations are most instructive. The drawings are well done and excellently reproduced and the typography is clear. Dr. Adair and his associates are to be complimented on their accomplishment.

Nutrition and Physical Degeneration: A Comparison of Primitive and Modern Diets and Their Effects. By Weston A. Price, M.S., D.D.S., F.A.C.D. Foreword by Ernest Albert Hooton, Professor of Anthropology, Harvard University, Boston. Cloth, Price, \$5. Pp. 431, with 134 illustrations. New York & London: Paul B. Hoeber, Inc., 1939.

The author's major interest is oral degeneration and oral disease. His approach to the problem is evangelistic rather than scientific. He is first appalled by "the progressive decline of modern civilization" because of the "physical, mental and moral deterioration of the modernized peoples." In the second place he is amazed and inspired by the revelation of the fund of wisdom, especially nutritional, in the culture and customs of primitive people and by their physical fitness. And in the third place he proposes as the remedy for this progressive decline that "We too, like the successful primitive stocks, can make, as a first requisite, provision for adequate nutrition for generation and growth," and second, for the regulation of overloads such as pregnancy. His dietary program for the control of dental caries differs but little from that recommended by other more conventional nutritionists, namely one rich in vitamins, in minerals, in fresh fruits and in fresh vegetables and one low in highly refined cereals and cereal products. It is composed of "a menu that is low in starches and sugars, together with the use of bread and cereal grains freshly ground to retain the full content of the embryo or germ, with milk for growing children and for many adults, and the liberal use of sea foods and organs of animals." To this he recommends the addition of a mixture of equal amounts of a very high vitamin butter and a very high vitamin cod liver oil. There is little reason to accept the verdict of the writer of the foreword that this is an "epochal piece of research." Above all it is the story of an observant, but not wholly unbiased, traveler who relates entertainingly what he discovered during vacation trips to primitive peoples in Switzerland, the Hebrides, North America, Melanesia, Polynesia, Africa and South America. Purposely detailed scientific data are not included although there is considerable information concerning native trade and customs. Both lay and professional readers will no doubt enjoy it whether or not they agree with any or all of the author's conclusions.

Anesthesia: Narcosis, Local, Regional, Spinal. By A. M. Dogliotti, M.D., Professor of Surgery, University of Modena, Modena, Italy. Authorized English translation by Carlo S. Scuderi, M.S., F.A.C.S., Associate in Surgery, University of Illinois College of Medicine, Chicago, Illinois. Cloth, Price, \$7.50. Pp. 680, with 236 illustrations. Chicago: S. B. Debour, Publishers, 1939.

This is the first Italian treatise on anesthesia. The author seems to have devoted a great deal of his attention to the study of anesthesia and has written a good book. It is essentially a glorified outline. It describes not only points in anesthesia but also technical steps in surgery, so that the book should appeal to both surgeon and anesthetist, but more particularly to the surgeon who supervises anesthesia for his own patients. Dogliotti has limited himself largely to a practical discussion. The book is freely illustrated and is one that will be of value to all specialists in anesthesia and should be an excellent reference book for any library that wishes to obtain a book which covers all phases of anesthesia.

Choice and Change of Doctors: A Study of the Consumer of Medical Services Conducted Under the Auspices of the Committee on Research in Medical Economics. By Gladys V. Swackhamer. Paper. Pp. 47. New York: The Committee, 1939.

From interviews of 365 households with "a high proportion of foreign born and first generation Americans" living in the slums and crowded tenement districts of the largest city in this hemisphere, it was discovered that the choices of medical service were extremely varied and not usually very wise. While one third, even of these families, tended to have a family doctor, they were frequently led to try other sources of medical care. The medical profession has known these facts for a long time and, as in so many other fields of medical activity for the defects in which the profession is criticized, has been about the only body that has tried to improve this condition. Several county medical societies have set up plans to give systematic guidance in the selection of physicians, and the profession has long been studying means of educating the public in methods of more intelligent choice. It is noteworthy that the study does not show any superiority of medical care under such systems of prepayment as existed and that, in a remarkably high percentage of the instances given, the exercise of a new choice seems to have improved the medical service received. No reference is made to the fact that it is the existence of a potential choice that is one of the most important means of protection against the worst types of medical service. No effort is made to show that selection by parties more interested in financial, political or other considerations than standards of medical service would improve the condition. The investigator might have learned much from a study of the history of the compensation clinics in New York City, where injured workers were denied freedom of choice and where, as a result, it required official investigation and legislative action to remove almost incredible abuses.

Medical Uses of Radium: Summary of Reports from Research Centres for 1938. Medical Research Council, Special Report Series, No. 236. Paper. Price, 30 cents; 1s. Pp. 49, with 5 illustrations. London: His Majesty's Stationery Office, 1939.

The Medical Research Council's seventeenth annual report summarizes the medical uses of radium and radon at various research centers in England for the year 1938. The report provides an opportunity for cursory review of the investigations in experimental and clinical fields together with a rapid appraisal of the progress and results of the research. The clinical sections outline the technical methods in use at the various centers for treatment of cancer and include a number of the tables containing pertinent statistical data. A special section on telerradium therapy reports the progress and investigations of the use of the radium beam. Of particular interest is the use of large radium sources (10 Gm.) and parallel investigations of 200 kilovolt x-ray and 5 Gm. radium units.

Heil Hunger! Health Under Hitler. By Dr. Martin Gumpert. Translated from the German by Maurice Samuel. Cloth. Price, \$1.75. Pp. 128. New York & Toronto: Alliance Book Corporation; Longmans, Green & Company, 1940.

From material "all of it provided by Nazi authorities and Hitler officials, by the doctors, statisticians and scientists of the Third Reich," a terrible picture is painted of health conditions in Germany. Rickets is on the increase. A systematic examination of the school children of Munich "discovered that only 3.5 per cent were free from symptoms of rickets!" As the

result of undernourishment and excessive athleticism, German youths are already invalids. The annual suicide rate is 4.1 per 10,000 compared with 1.4 in the United States. Tuberculosis, after long years of decline, is once more on the increase, and the tuberculous are now compelled to undergo heavy work in order to speed up production and this is also being defended with pseudoscientific arguments. The records of the sickness insurance system show an increase in cases of sickness of 20.3 per cent between 1933 and 1936. In spite of the claims of the Nazi régime that women were to be returned to the home, twice as many women were employed for wages in 1938 as in 1929. The destruction of scientific training in the universities and the encouragement of quackery by the government is lowering the quality of medical care. The disabilities reported among those called up for military service are steadily increasing. Practically all these statements are documented from official sources available in this country.

Aids to Dermatology and Venereal Disease. By Robert M. B. MacKenna, M.A., M.D., B.Ch., Hon. Dermatologist, Royal Liverpool United Hospital (Royal Southern Hospital), Liverpool. Second edition. Cloth. Price, \$1.25. Pp. 284, with 7 illustrations. Baltimore: William Wood & Company, 1939.

This edition, like the first, has been prepared with the hope that students and practitioners might find within its covers a convenient synopsis of the commoner cutaneous and venereal diseases. The book has been thoroughly revised with especial attention to revision of therapeutics, the chapters on tuberculi, dermatitis and prurigo. In the therapy of erysipelas the use of sulfanilamide, among other things, is discussed in a brief but adequate manner. While the work is small and does not contain the photographs seen in larger textbooks, the succinct descriptions of the conditions discussed and various agents used by the dermatologist are essentially good and complete enough to give one a basis for further reading in the larger textbooks or monographs if more information is desired. There are a number of illustrated sketches. The treatment of syphilis is excellent and succinctly discussed and includes a brief discussion of the toxic effects of treatment. On the whole, this work is to be highly recommended for one desiring a synopsis of dermatology for a background to be complemented by further study of the large standard textbooks when desired.

Modern Urology for Nurses. By Sheila Maureen Dwyer, R.N., Supervisor, J. Bentley Squier Urological Clinic, Presbyterian Hospital, New York, and George W. Fish, M.D., Associate Professor of Urology, College of Physicians and Surgeons, Columbia University, New York City. With a foreword by Helen Young, R.N., Director of Nurses and Nursing Service, Columbia-Presbyterian Medical Center in the City of New York. Cloth. Price, \$3.25. Pp. 290, with 60 illustrations. Philadelphia: Lea & Febiger, 1940.

The title aptly describes the contents of this splendid book. Good nursing, preoperatively and postoperatively, is probably never more urgently required than in urologic cases. The collaboration of these authors, who are well experienced in the care of these patients, from the nurse's as well as the surgeon's point of view, answers a long felt need for a sound basic textbook to prepare a nurse for competent urologic nursing. They are to be congratulated on this accomplishment. An adequate understanding of the pathology and physiology of the urogenital tract is an essential for satisfactory urologic nursing. Possessing it, the nurse can cooperate more intelligently with the physician and realize the importance of certain procedures which otherwise might not have any significance to her. The photographs and drawings with the accompanying text enable the nurse to acquire this understanding and simultaneously the knowledge of the principles of the nursing responsibility for these patients. The sequence of the book is well arranged. The chapters on operative procedures and instruments and their care are excellent references for any surgical nurse. This book should be the means of providing more intelligent attention for patients suffering from urologic entities not only because of its fine presentation of the theory and practice of urologic nursing but also for its complete plan for a urologic service. Of course, it is understood that not all hospitals can equip such a unit as described, but at least a workable plan is submitted which can be altered to suit the needs of individual hospitals.

The book is recommended to hospital training schools, where the chapter on suggestions for a teaching program alone should be a valuable adjunct in preparing the curriculum. Nursing supervisors with urologic cases should not be without a copy; in fact, every graduate nurse will find it a profitable investment.

Handbuch der mikroskopischen Anatomie des Menschen. Herausgegeben von Wilhelm v. Mollendorff. Band VI: Blutgefäß- und Lymphgefäßapparat Innersekretorische Drüsen. Teil 2: Innersekretorische Drüsen 1: Schilddrüse, Epithelkörperchen, Langerhanssche Inseln. Bearbeitet von Dr. W. Bargmann, Dozent an der Universität Leipzig. Paper. Price, 72 marks. Pp. 306, with 152 illustrations. Berlin: Julius Springer, 1939.

This second part of the sixth volume deals with the thyroid and parathyroid glands and with the islands of Langerhans. It has been prepared by Dr. Bargmann. Since the parathyroids are distinct from the thyroid, both genetically and functionally, Dr. Bargmann does not like to use the name parathyroid. He prefers to call these glands epithelkörperchen, the little epithelial bodies. This section constitutes a thorough review of researches in these fields in all countries up to the time of publication. It includes an exhaustive list of papers published and is indispensable for all research students in the field or for any student who wants to become thoroughly acquainted with the present status of our knowledge in any part of it. The illustrations are taken from these publications or from Dr. Bargmann's own preparations. Many are from colored drawings or photomicrographs. The book presents the general excellence characteristic of the publications of Julius Springer.

A Handbook of Elementary Psychobiology and Psychiatry. By Edward G. Billings, B.S., M.D., Assistant Professor of Psychiatry, University of Colorado School of Medicine, Denver. Cloth. Price, \$2. Pp. 271, with 10 illustrations. New York: Macmillan Company, 1939.

The author is director of the psychiatric liaison department of the Colorado General Hospital. The present book, which is intended to serve as an "orientation manual of psychobiology and psychiatry," is a compendium for students and physicians. It contains the material the author has found the most effective in meeting the needs of students in the study and management of the "disorders of personality functioning as they occur in clinical medicine and psychiatry."

Part I is a brief introduction to psychobiology as developed by Dr. Adolph Meyer, utilizing and defining the terminology coined by Dr. Meyer. Psychobiology is discussed as "the physiology of the total man," as dealing with "the meanings of things in the life of a person." This discussion of personality development and functioning stresses the person as a unit, as an organ for the further integration of functions at the various levels of integration (physicochemical, anatomic, and so on) in the service of the total personality. This highest level of integration, the psychobiologic level, may be studied in terms of aggregates of personal functions (action tendencies, intellectual attributes, emotional-hormonal functions). Charts are included to indicate levels of integration and factors involved in personality development and reaction.

Part II discusses psychiatric examination procedures for adults, for children and for inaccessible patients. Detailed outlines of procedure are provided. The author stresses the importance of proper initial approaches to the patients and of the rapport. The guide for examination of noncooperative patients is that developed by Drs. K. E. Appel and E. A. Strecker.

General psychopathology is discussed in part III. Following a discussion of normal and abnormal personality functioning, the author outlines and describes constitutional psychopathic reactions, the neuroses and the psychoses. Though necessarily condensed, descriptively satisfying accounts of the various commonly encountered clinical entities are offered. A brief chapter on general principles of psychotherapy gives those principles which the author has found to be "conservative, safe, conducive to constant psychopathological research into the genesis and dynamics of the patients' illness and . . . applicable to the rank and file of psychopathological states." Indirect therapeutic procedures, such as palliative measures for relief of symptoms, general supportive and "sublimative" therapies (as occupational therapy), are outlined briefly. Direct therapy is discussed in terms first of management of "dynamic factors in the external milieu" and secondary in management of the personality-determined factors. For personality study, psychoanalysis as a

methodology is merely referred to and a bibliography provided, and the "distributive analysis," the methods of Adolph Meyer, are briefly discussed and outlined.

This handbook is a carefully considered work which, in the main, should be quite useful to medical students. The clinical aspects of the book will be more comprehensible to the medical student than the introductory material. The excellent clinical discussions lack clarity of formulation of dynamics. This reflects half-hearted acceptance of those principles of dynamic psychology the more complete expression of which would be found in the formulations of psychoanalytic psychology. The format of the book is such that it can be slipped into the student's pocket, but this size renders many of the illustrations and tables all but useless on account of the microscopic size of the type.

Précis de médecine des enfants. Par P. Nobécourt, professeur de clinique médicale des enfants à la Faculté de médecine de Paris. Sixth edition. Cloth. Price, 175 francs. Pp. 1303, with 604 illustrations. Paris: Masson & Cie, 1939.

As the title suggests, the work is a summary of clinical pediatrics. It consists of brief clinical descriptions, often illustrated, of almost every condition met by the pediatrician. Little space is given to therapy or to newer scientific developments. Little emphasis is laid on subjects such as the vitamins and deficiency diseases, and the references are infrequent and out of date. For instance, in the discussion of rickets the insignificant emphasis laid on vitamin D is in contrast to the hysterical overemphasis placed on it by our American commercial propaganda. The author gives half a page to deficiencies of amino acids and another half page to the minerals. The book is unlike American textbooks or even our clinical publications. The clinical descriptions are often so much briefer than ours that it is hard to consider them as being an aid to the student. On the other hand the lack of space given to the newer advances in etiology and therapy interferes with its interest to the pediatrician. The clinical descriptions are characteristically French in being clear and to the point. The book may have interest to those who wish a compact reference book to find in a few moments a ready description of almost any condition met in the field of pediatrics.

An Outline of Medical Psychology. By E. Fretson Skinner, M.A., M.D., F.R.C.P., Physician in charge of the Psychological Clinic, Sheffield Royal Hospital, London. Cloth. Price, 6s. Pp. 173. London: H. K. Lewis & Co., Ltd., 1939.

This British volume attempts in a small space to cover the significant background material in psychology and to present a brief picture of a few of the neuroses. It is divided into three parts, the first dealing with physiology but, unfortunately, including discussions of the development of the mind, the unconscious mind and instinct and emotion, which this reviewer scarcely can see could be tied up with physiology as the author presents it. The more recent developments in psychobiology and psychosomatic medicine do present a relationship of mind to the central nervous system but that is not the presentation which Skinner develops in his book. The second part treats of psychopathology and this part is a very brief summary of freudian psychoanalysis stressing dreams, the unconscious and sexuality. The third part is devoted to the clinical aspect of the subject, including a discussion of about ten pages on hysteria but on no other psychoneurosis, although a chapter is devoted to the brief presentation of about nine cases of assorted psychoneuroses. There is a brief discussion of therapy. Skinner claims that the book is intended for the medical student who wishes a brief introduction. Surely there are many books which have been published prior to this one which could be more adequate to such a purpose. The genesis of the psychoses, modern psychology, psychodynamics, psychobiology and diagnosis and treatment of the psychoses are all omitted. Relationship of the mental case to society is barely touched on and the discussions of therapy are so brief as to give rather an invalid impression than a valid one. This book cannot replace the more conventional manuals of psychiatry, and it is to be hoped that the medical student is not in such a condition as to require a simpler volume than the textbooks prepared in this country by Rosanoff, Noyes or others by the time he reaches the place in the medical curriculum where he needs instruction in medical psychology.

Sketches in Psychosomatic Medicine. By Smith Ely Jelliffe, M.D., Consulting Neurologist to Manhattan State and Kings Park Hospitals, New York. Nervous and Mental Disease Monographs, No. 65. Boards. Price, \$3. Pp. 155, with illustrations. New York: Nervous and Mental Disease Monographs, 1939.

This collection of papers written by Dr. Jelliffe over a period of years is especially interesting at this time because of the intensified interest in psychosomatic problems. The author has long been the most prominent advocate of principles of psychosomatic medicine. In his textbook, written with the late Dr. White, he has always attempted to integrate psychologic factors with problems of organic medicine. In the collected papers within this volume the catholic interest of the author is indicated by the range of subjects about which he has written. From myopia to contractures of the hand one finds evidences of unconscious psychologic factors in the etiology. Dr. Jelliffe's work will long remain as a milestone in the development of psychosomatic medicine and his original investigations are of great interest. However, the actual correlations between emotional disturbances and physical dysfunctions are not worked out in the detail that we now have at our command. The field of psychoanalysis has progressed to such an extent in the last two decades that much of the psychologic material in this series of collected papers has been amplified and improved on to a great extent. The work then has a value as a historical brochure and as indicating certain basic principles.

The Genetics of Schizophrenia: A Study of Heredity and Reproduction in the Families of 1,087 Schizophrenics. By Franz J. Kallmann, M.D., New York State Psychiatric Institute and Hospital, New York. With the assistance of Senta Jonas Rypins, A.B., and with an introduction by Nolan D. C. Lewis, M.D., Director, New York State Psychiatric Institute and Hospital. Cloth. Price, \$5. Pp. 291. New York City: J. J. Augustin Publisher, 1938.

This book presents the results of a study of 1,087 schizophrenic probands and their families. The material, obtained in a German population, by painstaking investigation of schizophrenic patients in the Herzberge Hospital of Berlin between 1893 and 1902, although unselected, was rigorously classified. All blood relations were exhaustively surveyed and discriminately diagnosed. Statistical, classificatory, demographic and social analysis yielded figures for fertility, mortality, disease expectancy and genetic data.

The author, in his foreword, states that the principal aim of the investigations was to offer conclusive proof of the inheritance of schizophrenia and to establish a dependable basis for the clinical and eugenic activities of psychiatry. Analysis of the data reveals hereditoconstitutional factors having a decisive influence in the origin of schizophrenia, as the following conclusions indicate:

1. Families affected by schizophrenia show a progressive and uninterrupted social decline.
2. Germinally affected and overt schizophrenic individuals show a lowered marriage and birth rate, although not sufficient to lead to self elimination. Catatonic hebephrenic patients fall below the general population by one half in this regard.
3. The probable recurrence of schizophrenia is nineteen times greater in children of the schizophrenic than it is in the general population.
4. Predisposition to schizophrenia is specific, but phenotypic manifestations vary, depending on the interplay of somatic and constitutional factors.
5. Frequency-expectancy of schizophrenia in children does not depend on the sex of the schizophrenic parent or on whether they were born before or after disease onset.
6. Psychopathologic abnormalities, epilepsy, feeble-mindedness, neurosyphilis, alcoholism and criminality bear no biologic or hereditary relationship to the hereditary circle of schizophrenia. Each follows its own pattern of heredity and has independent selective factors. The blood kin of schizophrenic probands show no increase in expectancy of any of the abnormalities except as far as increased alcoholism and criminality is conditioned by the more frequent manifestation of the schizophrenic psychosis.
7. There is a consistent association of frequency of schizophrenia with mortality from tuberculosis, which may have com-

mon origin in a hereditary functional deficiency of the reticulo-endothelial system. The correlation and concordance are such that expectancy of schizophrenia and mortality from tuberculosis are the same in all blood relations of schizophrenic probands and lead to the assumption that the two tendencies are gene coupled and take the same recessive hereditary course.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Workmen's Compensation Acts: Disability Resulting from Repeated Bruising Not an Occupational Disease.—In the course of her employment, the plaintiff operated for about two weeks a machine for sewing cuffs on shirts. To operate the machine it was necessary that she exert lateral pressure with her right knee against the flat side of an elliptical plate, which was attached by a set screw to a rod extending to the so-called table of the machine. She was called on to exert this lateral pressure with her right knee about 288 times an hour. The mechanism on the machine used by the plaintiff was defective. At times the set screw would become loose and the plate would slide around the rod so that its edge, or the screw itself, instead of the flat surface of the plate, would be pressed by the operator's knee. The plaintiff's knee gradually became sore. On one occasion, according to the testimony of the plaintiff, the "screw part" hit her knee and bruised it badly. It became acutely inflamed and she was forced to cease working. For the resulting disability she sought compensation under the workmen's compensation act of Maryland and the matter eventually reached the Court of Appeals of Maryland.

The employer contended that the plaintiff's disability resulted from an occupational disease and not from an accidental injury and was not, therefore, compensable under the Maryland act. In the opinion of the Court of Appeals, the disability in question did not result from an occupational disease since the very nature of the injury did not satisfy the "literary definition" of a disease, which ordinarily implies some morbid derangement of bodily functions. The injury suffered here, said the court, was more consistent with the injury and destruction of tissue by the application of external force, such as a blow. The term "accidental injury" is generally accepted as meaning physical injury to the bodily tissues caused by some unusual condition or occurrence in the employment and is associated in varying degrees with the elements of force, violence and surprise. While the word "accident" connotes suddenness, it does not necessarily imply that the occurrence is instantaneous. An injury may be accidental even though the conditions which caused it extended over a considerable period of time.

In the instant case, continued the court, there was evidence legally sufficient to support the conclusion of the trial court, which overruled the holding of the accident commission, that the plaintiff's knee was bruised and injured by the operation of the knee press, which because of faulty adjustment was stiff and hard to move; that while she knew of the faulty adjustment she did not know and did not expect that operating the knee press would injure her knee, and, finally, that the injury which caused the acute inflammation which prevented her from continuing to operate the knee press was caused by the press plate slipping around the rod to which it was fastened so that when she pressed her knee against it she struck the set screw instead of the smooth surface of the plate. These facts, in the opinion of the court, were sufficient to require the submission to the jury of the issue of whether the plaintiff's disability resulted from an accidental injury arising out of and in the course of her employment.

Accordingly, the Court of Appeals affirmed the judgment of the trial court and ordered, in effect, that compensation be awarded the plaintiff.—*Foble v. Kniefely (Md.)*, 6 A. (2d) 48.

Charitable Hospitals: Liability for Burns to Child of Pay Patient.—A pay patient, Mrs. Miller, was delivered of a male child at St. Joseph's Hospital in Tacoma, Wash., one of eight hospitals owned and operated by the defendant corporation, the Sisters of St. Frances. On the ninth evening after the child's birth he was entrusted to the sole charge of a student nurse employed by the hospital. She placed him on his back about one foot from the edge of an adult's bed located about one inch from a heated radiator. She then left the room for a few minutes at the request of her supervisor, and on her return she found the baby lying on his back with his head resting against the radiator. The child sustained severe burns on his head which left permanent scars and a defect in the top of his skull. Subsequently the mother and father of the child brought suit against the defendants, the corporation and the student nurse, to recover damages for the injuries which the child had sustained. From a judgment in favor of the plaintiff the defendants appealed to the Supreme Court of Washington.

The Supreme Court agreed with the defendants' contention that the Sisters of St. Frances is a charitable organization and is not liable for the alleged negligent acts of its servant. In this state, said the court, a charitable hospital conducted not for profit is not liable under the rule of respondeat superior for the negligence of its employees unless it was negligent in failing to exercise ordinary care in their selection and retention. Also, the fact that patrons of a hospital pay for services rendered does not deprive the institution of its status as a charitable organization, provided that its income is devoted to the establishment of its charitable purposes and no portion thereof is diverted to private profit or advantage. In the judgment of the court, the articles of incorporation and by-laws of the defendant corporation showed that it was organized as a charitable corporation, and there was no evidence that any of the corporation's officers or agents diverted to the private advantage or profit of any person any of the income derived from the operation of the hospital.

Although the trial court correctly instructed the jury that the defendant corporation was a charitable institution, it erred, said the Supreme Court, when it admitted over the defendants' objection evidence introduced by the plaintiff showing the amount of property owned by the corporation, the amount of cash St. Joseph's Hospital had on hand and the name of the bank in which it was deposited, and the excess of the hospital's income over disbursements and the use of such excess to reduce a mortgage on the hospital property. The mere fact that the income of a corporation exceeds its operating expenses does not make it any less a charitable organization if the excess of income over expenditures is used for carrying on the charitable purposes for which it was organized. The payment of a legitimate corporate indebtedness, such as a mortgage, is certainly in furtherance of the charitable purposes of a corporation. In the opinion of the court, the admission of the evidence objected to by the defendants was improper because such evidence had no bearing whatever on any issue in the case. It was not preliminary to nor in support of any evidence that any profit or personal gain from the operation of the hospital accrued to any trustee, stockholder or individual.

Accordingly, the judgment of the trial court in favor of the plaintiff was reversed and the case remanded for a new trial.—*Miller et ux. v. Mohr et al.; Same v. Sisters of St. Frances et al. (Wash.)*, 89 P. (2d) 807.

Society Proceedings

COMING MEETINGS

National Medical Association, Houston, Tex., Aug. 12-16. Dr. John T. Givens, 1108 Church St., Norfolk, Va., General Secretary.
Pacific Northwest Medical Association, Spokane, Wash., July 10-13. Dr. C. W. Countryman, 407 Riverside Ave., Spokane, Wash., Secretary.
Washington State Medical Association, Tacoma, Aug. 26-28. Dr. V. W. Spickard, 1305 Fourth Ave., Seattle, Secretary.
West Virginia State Medical Association, White Sulphur Springs, July 29-31. Mr. Joe W. Savage, Public Library Bldg., Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1930 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Clinical Pathology, Baltimore

10:205-264 (March) 1940

- Direct and Indirect Determinations of Estrogenic and Gonadotropic Hormones. E. von Haam, Columbus, Ohio.—p. 205.
Clinical Application of Hippuric Acid and Prothrombin Tests. A. J. Quick, Milwaukee.—p. 222.
Normal Bromine Content of Blood of Healthy Individuals. Helen L. Wikoff, R. A. Brunner and H. W. Allison, Columbus, Ohio.—p. 234.
Comparison of Tests for Bilirubin in Urine. A. G. Foord and C. F. Balsinger, Los Angeles.—p. 238.
Lupoid Sarcoid Reaction Induced by Foreign Body (Silica). W. M. German, Cincinnati.—p. 245.

10:265-318 (April) 1940

- Leukogenic Bone Marrow and Leukocyte Extracts. A. Nettleship, Nashville, Tenn.—p. 265.
Superiority of Kolmer Antigen Reinforced with Acetone Insoluble Lipoids. T. K. Rathmell, Josephine Heacock and Martha Javer Fry, Norristown, Pa.—p. 275.
Study of Sensitivity and Specificity of Simplified Complement Fixation Test for Syphilis. F. Boerner and Marguerite Lukens, Philadelphia.—p. 282.
Rapid Heating of Serum for Kline Tests for Syphilis. C. R. Rein and Clarise E. Hazay, New York.—p. 288.
Twenty-Four Hour Test (Aschheim-Zondek Modification) for Diagnosis of Pregnancy. R. E. Kelso, Washington, D. C.—p. 293.
Value of Sedimentation Time in Suppurations of Anorectal Tissues. R. Turell and A. W. M. Marino, Brooklyn.—p. 300.

American Journal of Surgery, New York

48:327-522 (May) 1940. Partial Index

- Changing Conception of Cancer of Prostate. R. Gutierrez, New York.—p. 330.
Benign Uterine Hemorrhage in Nonpregnant Women. E. A. Schumann, Philadelphia.—p. 353.
*Active Immunization Against Tetanus by Combined Subcutaneous and Intranasal Routes: Simple Procedure for Maintenance of Protective Antitoxin Titer. H. Gold, Chester, Pa.—p. 359.
Care of Advanced Cancer Exclusive of Relief of Pain by Drugs. H. C. Saltzstein, E. H. Lauppe and M. Z. Feldstein, Detroit.—p. 376.
Protruding Ears: Method of Plastic Correction. G. B. New and J. B. Erich, Rochester, Minn.—p. 385.
Severe Injuries of Face: Some Considerations in Their Diagnosis and Treatment. A. K. Foster Jr., New York.—p. 391.
Method for Control of Postoperative Pain in Hallux Valgus Operations. M. H. Bloomberg, Pittsburgh.—p. 412.
Osteitis Deformans (Paget's Disease of Bones): Review of Fifty-One Cases. E. D. Sugarbaker, New York.—p. 414.
Bladder Disturbances in Diseases of Sigmoid. C. J. E. Kickham and T. F. P. Lyons, Boston.—p. 424.
Treatment of Granulomatous Proctitis of Lymphopathia Venerum. M. H. Shear, York, Pa.—p. 427.
Surgical Management of Duodenal Ulcer. S. Eiss, New York.—p. 429.
New Physical Sign Useful in Early Diagnosis of Perforated Duodenal Ulcer. J. O. Bower, Philadelphia.—p. 436.
Appendicitis Induced by Trauma. J. T. Bate, Louisville, Ky.—p. 437.
Appendical Oxyuriasis. E. I. Greene and J. M. Greene, Chicago.—p. 440.

Active Immunization Against Tetanus.—Gold used a purified, concentrated tetanus toxoid (tetanus toxoid topagen) intranasally for active immunization of 145 human beings. With the patient prone on the table, the head hyperextended, 0.1 cc. (two or three drops) of topagen was introduced into each nostril. The 145 subjects were divided into eight groups: Group A received tetanus toxoid topagen exclusively for the primary course of treatment; groups B, C and D received one subcutaneous injection of alum precipitated tetanus toxoid and two or three daily intranasal instillations of tetanus toxoid topagen; prior to nasal treatment groups E, F, G and H were injected with two or more doses of alum-precipitated toxoid or three or more doses of plain toxoid or plain toxoid with 0.4 per cent alum. The antitoxin titer was determined before the first instillation of tetanus toxoid topagen and thereafter at frequent inter-

vals. The results obtained in groups A, B and C reveal the importance of subcutaneous injection of alum toxoid. It cannot be replaced by three daily intranasal instillations of tetanus toxoid topagen. To render the antitoxin-producing cells of the body capable of responding to intranasally administered toxoid, it is necessary to introduce within the host a definite amount of toxoid. This did not take place in group A. A greater number of subjects reached the 0.1 unit level of antitoxin earlier in group C, in which three daily instillations were given, than in group B, in which there were two daily instillations. Of twenty-four subjects tested seven days after the second injection of alum toxoid, six showed a level of less than 0.1 unit, while the rest had levels of 0.1 unit or more of antitoxin per cubic centimeter of blood serum. Forty-five subjects tested one month after the second injection of toxoid showed more than 0.1 unit of antitoxin. The protection produced by intranasal topagen develops less promptly and is not as lasting as that which follows the injection of a second dose of tetanus alum precipitated toxoid. A substantial immunity developed in the eighty-seven subjects as the result of the previous injection of two or more doses of tetanus toxoid. One week after the first instillation of topagen ten members of group G who had received only one nasal application showed an increase in titer above that of the control test, while fourteen showed no increase over the control values or still had a level of less than 0.1 unit of antitoxin. Eighteen group E subjects who were given two nasal instillations on successive days showed an increase over the control titer, while seven showed only control values. Of the subjects in group E who had received three nasal applications on successive days, twenty-two showed an increase over the control values while four showed either no increase or levels of less than 0.1 unit. In groups E and F (receiving three daily nasal instillations as a "repeat" dose), about the same number of persons showed a further increase in titer between the seventh and the ninth day after the first instillation of tetanus toxoid topagen. In group G, following the administration of the second intranasal dose, there was a definite increase in titer two days later. At the end of two weeks, there was no great difference between the three groups. Nasal instillations of tetanus toxoid topagen on three successive days produce a more rapid rise in antitoxin titer than do two daily or two weekly instillations. Group H subjects who received three weekly nasal applications of toxoid did not show better immediate results than did group G. At the end of three months the patients had an antitoxin titer well above the control value, and twenty-three members of groups E, F and H showed good protection when tested six months after the "repeat" instillation. Therefore, to produce and maintain immunity, it is necessary first to render the subject capable of responding to intranasal instillations of tetanus toxoid topagen by two primary doses of tetanus alum precipitated toxoid given ninety days apart and second to repeat the course of nasal instillations every six months.

Annals of Internal Medicine, Lancaster, Pa.

13:1791-2024 (April) 1940

- What Is an Internist? O. H. P. Pepper, Philadelphia.—p. 1791.
Functional Aortic Insufficiency. C. F. Garvin, Cleveland.—p. 1799.
Present Status of the Pulpless Tooth. L. I. Grossman, Philadelphia.—p. 1805.
*Correlation Study Between Retinal Vascular Changes, Electrocardiographic Alterations and Radiologic Heart Size in Essential Hypertension. H. Roesler, G. G. Gibson and R. Hussey, Philadelphia.—p. 1814.
Hypoglycemia Following Encephalitis. J. C. Meakins, Montreal.—p. 1830.
The Problem of Rheumatism and Arthritis: Review of American and English Literature for 1938 (Sixth Rheumatism Review). P. S. Hench, Rochester, Minn.; W. Bauer, Boston; M. H. Dawson, New York; F. Hall, Boston; W. P. Holbrook, Tucson, Ariz.; J. A. Key, St. Louis, and C. McEwen, New York.—p. 1837.

The Retinal Vessels and Heart Size in Hypertension.—Roesler and his associates selected eighty patients with uncomplicated cases of essential hypertension; forty-two were females and thirty-eight were males between the ages of 12½ and 73 years. The patients had a diastolic blood pressure of at least 95 and a systolic of at least 150 mm. of mercury. Examination of the fundus revealed retinal arteriolar changes of the hypertensive type in all cases; seventy-one were classified as having advanced to the stage of sclerosis while the remainder

were in the preorganic stage of the disease. Electrocardiographic study showed final deflection changes in fifty-five. Left axis deviation occurred in sixty-two. Final deflection changes were associated with left axis deviation in forty-six cases, while left axis deviation occurred without associated final deflection changes in sixteen. In nine instances the electrocardiogram was normal. Of the electrocardiograms 31.3 per cent revealed no significant changes. The orthodiagraphic study of fifty-nine patients showed absence of cardiac enlargement in thirteen, a slight to moderate enlargement in thirty and marked enlargement in sixteen. There is a trend toward a positive correlation between electrocardiographic alterations, cardiac enlargement and the grade of the retinal arteriolar changes, and between electrocardiographic alterations and the degree of cardiac enlargement. This correlation was not demonstrated to be of high statistical significance. The irregular distribution of the vascular processes and the lack of parallelism between the systemic and the central retinal artery blood pressures may account for a part of this lack of correlation. As there is an inadequate correlation between the three criteria in question, it seems desirable to have an evaluation of the eyeground, the electrocardiogram and the heart size in addition to the more routine studies when a prognosis for essential hypertension is attempted.

Archives of Dermatology and Syphilology, Chicago

41:817-1000 (May) 1940

- Scrologie Verification Test in Diagnosis of Latent Syphilis. R. L. Kahn, Ann Arbor, Mich.—p. 817.
- Mite Dermatitis. D. E. H. Cleveland, Vancouver, B. C.—p. 831.
- Vitamin D in Treatment of Acne. C. A. Simpson, Washington, D. C.; F. A. Ellis, Baltimore, and H. Kirby-Smith, Washington, D. C.—p. 835.
- Influence of Sodium Dihydrocholate on Therapeutic Activity of Neoraphenamine: Experiments with Acute Testicular Syphilis of Rabbits. J. A. Kolmer, with assistance of Anna M. Rule, Philadelphia.—p. 838.
- Vitamin Therapy in Dermatology, with Particular Reference to Vitamin D in Treatment of Acne and of Diseases Due to Altered Usage of Calcium. M. T. R. Maynard, San Jose, Calif.—p. 842.
- Pemphigus Foliaceus (Vago Salvogen): Endemic Disease of State of São Paulo (Brazil). J. P. Vieira, São Paulo, Brazil.—p. 858.
- Metabolic Cutaneous Calciosis: Report of Case with Scleroderma. T. N. Graham, New York.—p. 864.
- Leishmaniasis Recidiva Cutis: Leishmanid. C. Herliu, Tel Aviv, Palestine.—p. 874.
- Wood Tick Stimulating Pedunculated Tumor. R. Friedman, Philadelphia.—p. 887.
- Passive Transfer of Light Sensitivity: Report of Case. J. L. Callaway, Durham, N. C.—p. 889.
- Cheilitis and Dermatitis from Tooth Paste. L. G. Heinhauer, Pittsburgh.—p. 892.
- Cultural Variations of Trichophyton Purpureum (Bang), with Discussion of Recognizable Features. G. M. Lewis and Mory E. Hopper, New York.—p. 895.
- Public Health Problems in Control of Syphilis. L. W. Shaffer, Detroit.—p. 904.
- Excretion of Sulfanilamide Through Skin. T. Cornbleet, Chicago.—p. 912.
- Hypertherm Treatment of Cutaneous Diseases. E. B. Tamber and L. Goldman, Cincinnati.—p. 919.

Vitamin Therapy in Dermatology.—Maynard observed for three months two groups of seventy and sixty patients respectively with acne treated with vitamin D. In the first group 75.6 and in the second 83.1 per cent showed satisfactory results; that is, thirty-two patients of each group were healed at three months. A similar study of twenty-seven patients with acne treated with carotene gave 50 per cent satisfactory results. In the first series an average dose of from 20 to 30 drops (10,000 to 15,000 U. S. P. units) of a vitamin D preparation (viosterol in oil) was given daily. Since then 30 drops (10,000 U. S. P. units) of a synthetic crystalline vitamin D₂ product (calciferol) has been given each morning for three weeks and then 20 drops twice daily (12,500 U. S. P. units). All doses were taken in milk. Three patients with localized scleroderma were satisfactorily treated with vitamin D alone. Sclerosis following an overdose of roentgen therapy gave a promising response in two cases. One patient with pemphigus in the early stages recovered after taking large doses of vitamin D. She had a relapse when the vitamin was discontinued and recovered when treatment was resumed. A young teacher with acquired leukonychia totalis regained normal nail structure after treatment with vitamin D. The majority of patients with psoriasis did not get worse in the winter on vitamin D doses of from 10,000 to 12,000 units

throughout the season. Heavier doses are probably justifiable in selected cases. The vitamin has been administered to children with atopic flexural eczema with substantial benefit. It cannot be stated that lack of vitamin D or calcium alone is responsible, for acne is not observed in rachitic infants. It also is not a factor in osteoporosis or osteomalacia, although these diseases are associated with vitamin D and calcium deficiencies. Acne is a disease occurring in the period of sexual and glandular activity. It is apparently associated with cyclic sexual activity in males and is possibly made worse by excessive sexual practices. The greatest benefit of using vitamin D in acne, in the author's opinion, has been the avoidance of roentgen therapy, which too often becomes the master rather than the servant of the physician.

Cutaneous Excretion of Sulfanilamide.—Cornbleet determined the partition and storage of sulfanilamide in the blood and skin of dogs and its concentration and persistence in the blood, unfiltered sweat and filtered sweat of human beings. In some cases a sweat bath caused the reappearance of sulfanilamide in the blood several days after the drug had disappeared from it. Sulfanilamide appears in the skin soon after its administration. The quantity deposited there accounts for a large share of the entire amount present in the body. Sulfanilamide may be of value, therefore, in certain kinds of infections within the skin. Through the medium of sweat, sulfanilamide is rapidly made available at the surface of the skin. There is some clinical evidence, and more may be expected in the future, to show that sulfanilamide is of benefit for the "streptococci," or superficial streptococcal infections of the skin and its folds. Untoward reactions occur with sufficient frequency to withhold its use in the treatment of the simpler cutaneous infections that respond to less dangerous applications and drugs.

Archives of Ophthalmology, Chicago

23:899-1130 (May) 1940

- Rosacea Keratitis and Conditions with Vascularization of Cornea Treated with Riboflavin. L. V. Johnson and R. K. Eckardt, Cleveland.—p. 899.
- Postme Treatment of Iris in Lever Aclon Intracapsular Extraction of Cataract. K. C. Dutt, Soupur Raj, India.—p. 908.
- Experimental Production of So-Called Bullous Keratitis. D. G. Cogan, Boston.—p. 918.
- Vacuum Massage of Eyeball. T. J. Dimitry, New Orleans.—p. 926.
- Acute Exudative Choroiditis: Pathologic Physiology; Treatment with Vasodilators. W. F. Duggan, Utica, N. Y.—p. 930.
- New Method of Subjective Refraction Involving Identical Techniques in Static and in Dynamic Tests. M. Luckiesh and F. K. Moss, Cleveland.—p. 941.
- Primary Tumors of Optic Nerve (Phenomenon of Recklinghausen's Disease): Clinical and Pathologic Study with Report of Five Cases and Review of Literature. F. A. Davis, Madison, Wis.—p. 957.
- Induced Sire Effect with Eyes in Asymmetric Convergence. K. N. Ogil, Hanover, N. H.—p. 1023.
- Treatment of Vernal Catarrh with Solid Carbon Dioxide. V. La Rocca, New York.—p. 1039.
- Paralysis of Divergence. M. B. Bender and N. Savitsky, New York.—p. 1046.
- Chorioretinal Arteriolar Necrosis in Malignant Hypertension: Report of Case. M. Cohen, New York.—p. 1052.
- Congenital and Acquired Anomalies of Optic Disk. F. C. Cordes, San Francisco.—p. 1063.

Riboflavin for Rosacea Keratitis and Corneal Vascularization.—In treating thirty-six patients with rosacea keratitis Johnson and Eckardt added from 3 to 4.5 mg. of riboflavin to the diet. Nine of these patients had some cutaneous rosacea of the face. The corneal lesions of thirty-two healed promptly, with no recurrences during riboflavin therapy. Four patients responded slowly or not at all and failed to remain free from symptoms. Of the nine with concomitant cutaneous rosacea four showed satisfactory cutaneous improvement. The five who were not improved had achlorhydria, as demonstrated by the histamine test. The four patients who remain free from cutaneous rosacea cannot be persuaded to have an analysis of their gastric contents. Such an analysis was done for six of the thirty-two patients who remained free from ocular rosacea and normal levels of gastric hydrochloric acid were observed. Only two of the thirty-six patients studied gave a history of having eaten adequate amounts of egg white, liver and milk. These two patients did not improve on the addition of riboflavin to their diet, and an analysis of their gastric contents after the administration of 3 mg. of histamine did not show any free hydro-

chloric acid. Emphasis is placed on the similarity between rosacea keratitis and the ocular condition of rats in which ulcers developed because of dietary riboflavin deficiency. The mechanism is possibly that of inadequate oxidation of enzymes, such as Warburg's yellow enzyme, in the avascular cornea. Rosacea keratitis may be the direct result of riboflavin deficiency. Riboflavin therapy may likewise be of value in certain other forms of corneal vascularization. It apparently is of no value in conditions accompanied by large blood vessels or in which scar tissue is present. Continuous therapy is advisable for constant benefit.

Solid Carbon Dioxide for Vernal Catarrh.—La Rocca used solid carbon dioxide in the treatment of ten patients with vernal catarrh. The catarrh was of the tarsal type in nine cases and of the limbic in one case. The response to the therapy was favorable. It was not wholly successful in two patients, but in these the number of treatments was insufficient. The only patient with the limbic type of catarrh was cured after six treatments. There were no relapses among the cured patients after four years. Solid carbon dioxide has a beneficial effect on the vegetations of vernal catarrh because of its freezing and not because of its chemical properties. In freezing the tissue, the carbon dioxide causes thrombosis of the small vessels of the vegetations, and consequently necrosis of the cells. New connective tissue is formed where the vegetations have been, and whitish shiny scars can be seen in the healed conjunctivas. The failure of other treatments for vernal catarrh (radium, allergic desensitization, vaccines, drugs or transplants of mucous membranes) is probably due to the fact that the pathologic process of vernal catarrh does not lie in the conjunctiva alone but deeper, in the superficial layers of the tarsus.

Endocrinology, Los Angeles

26:735-940 (May) 1940. Partial Index

- Effect of Human Diabetic Plasma on Blood Sugar Curves in Rabbits Following Insulin. A. Marble, Alison T. Fernald and Rachel M. Smith, Boston.—p. 735.
- Reverse or Paradoxical Blood Sugar Response to Ingested Glucose: Correlation of Laboratory and Clinical Findings on Forty Patients. H. Wheelon, Seattle.—p. 743.
- Bio-Assays for Urinary Androgens: Comparison of Results in Normal Men with Those Having Endocrine Disturbances. E. P. McCullagh and H. V. Lilga, Cleveland.—p. 753.
- *Percutaneous Administration of Testosterone Propionate for Dysmenorrhea. A. R. Abarbanel, Baltimore.—p. 765.
- Maintenance of Corpus Luteum Function in Women by Estrogenic Substances. A. Westman, Lund, Sweden.—p. 774.
- Thyroid Gland Disturbance as Cause of Unexplained Fever. R. C. Moeilg, Detroit.—p. 783.
- Report of Three Cases of "Clinical" Addison's Disease Surviving More Than Fifteen Years. L. G. Rowntree, Philadelphia.—p. 793.
- Benzedrine Sulfate in Obesity. G. Rosenthal and H. A. Solomon, New York.—p. 807.
- Inhibition of Pelvic Changes Occurring During Pregnancy in Mice by Testosterone Propionate. W. U. Gardner and J. Van Heuverswyn, New Haven, Conn.—p. 833.
- Further Studies on Refractory State Developed Following Repeated Injections of Adrenal Extract. F. A. Hartman, Lena A. Lewis and Jane E. Gabriel, Columbus, Ohio.—p. 879.
- Cell Contents of Cortex of Suprarenal Gland. Marjorie V. N. Sudds, London, England.—p. 895.
- Effect of Adrenalectomy on Ketosis Produced in Rats by Anterior Pituitary Extract. R. A. Shipley, Cleveland.—p. 900.

Testosterone Propionate Percutaneously for Dysmenorrhea.—Abarbanel treated ten patients with dysmenorrhea with or without premenstrual tension by the percutaneous administration of testosterone propionate. The method is indicated when patients object to injections, when they cannot come regularly to the dispensary, in those previously treated by injection with few residual symptoms and in those who, having to leave town, cannot secure the injections. Each patient is urged to receive paracental therapy first, as the required dosage by this route affords a guide to the amount necessary percutaneously. Patients who do not respond to paracental therapy usually will not respond to cutaneous administration. The dosage required by the percutaneous route is from three to six times as great as that which is necessary for the subcutaneous route, depending mainly on the vehicle. Sesame oil has proved more effective than any of the ointment bases tried. The areas utilized for percutaneous administration have been the axillary region, the inner part of the thighs or the deltoid region. If the gynecologic

examination is negative, the patient is told to begin percutaneous administration from ten days to two weeks before the expected onset of the next menstruation. If the uterus is small or anatomically misplaced, or both, or if the patient is 30 or more years old, she is advised to begin applications from four or five days after the period is over and to continue them for the remainder of the cycle. The total dosage per cycle has ranged from 20 to 90 mg. of the testosterone. Each patient must be treated individually and no set dosage schedule can be outlined. After three successive periods with little or no discomfort, therapy is discontinued for a month to observe whether improvement is maintained. If not, treatment is repeated. Only one of the author's ten patients was not relieved. The manner in which the dysmenorrhea is relieved will not be clear until it is definitely known what factors initiate the pain. It is reasonable to believe that the relief of the dysmenorrhea may be partly, or even entirely, caused by certain as yet unknown effects of testosterone propionate on the nervous system. Why the relief is permanent in some women is still beyond explanation. The patients treated showed no signs of masculinization. The only possible sign of defeminization was the loss of nymphomaniac tendencies in one patient.

Florida Medical Association Journal, Jacksonville

26:477-528 (April) 1940

- Atrophic Rhinitis and Otosclerosis: Treatment with Estrin Alone and Combined with Other Therapy. S. B. Forbes, Tampa.—p. 487.
- Hemorrhage Complicating Empyema Thoracis: Report of Fatal Case. S. G. Kennedy and J. H. Pierpont, Pensacola.—p. 492.
- Osteo-Arthritis. W. H. Hoskins, Venice.—p. 496.
- Ethmoiditis. N. W. Gable, St. Petersburg.—p. 498.

Illinois Medical Journal, Chicago

77:385-548 (May) 1940. Partial Index

- The Legislative Activities of the Society Is a Public Service. J. R. Neal, Chicago.—p. 413.
- Medical Education in Illinois During the Last 100 Years. F. C. Zapffe, Chicago.—p. 414.
- Hospital Development in Illinois. H. F. Sanger, Chicago.—p. 417.
- One Hundred Years of Public Health in Chicago 1840-1940. H. N. Bundesen, Chicago.—p. 424.
- A Century's Development of Public Welfare Work and Projects (1840-1940). C. F. Read, Elgin.—p. 439.
- A Century of Tuberculosis in Illinois. F. Tice, Chicago.—p. 455.
- The Physician and the Social Service Agencies. M. Fishbein, Chicago.—p. 466.
- A Survey of Pediatrics During the Past 100 Years. I. A. Aht, Chicago.—p. 485.
- Dilantin (Sodium Diphenylhydantoinate) in Treatment of Epilepsy. J. A. Morgan, Elgin.—p. 542.

Indiana State Medical Assn. Journal, Indianapolis

33:227-284 (May) 1940

- Sulfanilamide in Old Trachoma. J. R. Kettler and C. W. Rutherford, Indianapolis.—p. 227.
- Syphilis of Eye. E. W. Dyar and J. E. Dalton, Indianapolis.—p. 229.
- Crossed Eyes. J. V. Cassidy, South Bend.—p. 234.
- Trachoma. O. T. Allen, Terre Haute.—p. 235.
- Ophthalmia Neonatorum. E. E. Holland, Richmond.—p. 236.
- Practical Points in Refraction for the General Practitioner. B. D. Raydin, Evansville.—p. 237.
- Sulfanilamide and Neoprontosil: Recent Advance in Ophthalmic Therapeutics. C. W. Rutherford, Indianapolis.—p. 241.
- Maternal Welfare. F. W. Peyton, Lafayette.—p. 245.

Iowa State Medical Society Journal, Des Moines

30:137-180 (April) 1940

- Intravenous Anesthesia. R. C. Adams, Rochester, Minn.—p. 148.
- Relative Importance of the Patient or the Disease. J. I. Marker, Davenport.—p. 149.
- The Principle of Russell Traction Applied to Fractures of Upper Half of Humerus. D. N. Gibson, Des Moines.—p. 152.
- Myasthenia Gravis: Case with Necropsy. R. C. Scannell, Carroll.—p. 154.

30:181-228 (May) 1940

- A History of English Medicine from 1460 to 1860. C. B. Luginbuhl, Des Moines.—p. 181.
- Diagnostic Criteria and Surgical Treatment of Acute Perforated Duodenal Ulcer. K. W. Woodhouse, Cedar Rapids.—p. 190.
- Technic of Examination of Spine and Manipulative Treatment. L. J. Miltner, Davenport.—p. 193.
- Adherent Placenta and Obstetric Shock. S. W. Barnett, Cedar Falls.—p. 197.
- Cancer of Stomach. F. W. Mulsow, Cedar Rapids.—p. 199.

Journal of Infectious Diseases, Chicago 66:97-192 (March-April) 1940. Partial Index

- Variety of Types in Human Paratyphoid C Infections. F. Schiff and I. Saphra, New York.—p. 97.
- Hydrogen Ion Concentration Stability of Virus of Equine Encephalomyelitis (Eastern Strain) Under Various Conditions. H. Finkelstein, W. Marx, Dorothy Beard and J. W. Beard, Durham, N. C.—p. 117.
- Persistence of Vaccine Virus in Rabbits Immunized to Vaccinia by a Previous Infection and Relationship of Immunity to Latent Virus. J. M. Pearce, Brooklyn.—p. 130.
- Sulfone Compounds in Treatment of Experimental Pneumococcal Infections. G. W. Raiziss, J. A. Kolmer and Anna M. Rule, Philadelphia.—p. 138.
- Neutralization Test in Lymphogranuloma Venereum. Enid Rodaniche, Chicago.—p. 144.
- Development of Agglutinins for Aerobic, Gram-Negative Bacilli in Patients with Diffuse Peritonitis or Abscess Formation Following Appendicitis. E. Neter and E. Milch, Buffalo.—p. 166.
- Susceptibility of Mice to Intranasal Instillation of Various Types of Pneumococci. E. G. Stillman, New York, and R. Z. Schulz, Boston.—p. 174.
- Occurrence, Clinical Characteristics and Therapy of Pneumococcus XXXIII Pneumonia. A. Davidson and J. G. M. Bullock, New York.—p. 178.
- Distinct Type of Pneumococcus Immunologically Related to Type IX (Cooper). Annabel W. Waller, Katharine D. Blount, Marian W. Beattie and Hannah Y. Culler, New York.—p. 181.
- Action of Gastric and Salivary Mucin on Phagocytosis. Ruth Tunnicliff, Chicago.—p. 189.

Journal of Investigative Dermatology, Baltimore 3:79-158 (April) 1940

- Axon Reflex Responses to Acetylcholine in Skin. S. Rothman and J. M. Coon, Chicago.—p. 79.
- Studies on Liberation of Acetylcholine in Skin. S. Rothman and J. M. Coon, Chicago.—p. 99.
- Experimental Intracutaneous Tuberculosis in White Rat. W. H. Feldman and A. G. Karlson, Rochester, Minn.—p. 107.
- Contact Reactions in Atopy: II. Incidence of Contact Reactions with Various Allergens. M. Albert and M. Walzer, Brooklyn.—p. 119.
- Nails and Nail Changes: II. Modern Concepts of Anatomy and Biochemistry of Nails. H. Silver and B. Chicago, New York.—p. 133.

New England Journal of Medicine, Boston 222:739-782 (May 2) 1940

- *Clinical and Laboratory Studies on Use of Serum and Sulfapyridine in Treatment of Pneumococcal Pneumonias. M. Finland, F. C. Lowell and W. C. Spring Jr., Boston.—p. 739.
- *Vitamin C Deficiency in an Otherwise Normal Adult. J. H. Crandon and C. C. Lund, Boston.—p. 748.
- End Results in Injection Treatment of Inguinal Hernia. H. K. Sowles and W. M. Shedden, Boston.—p. 753.
- Granulocytopenia Following Barbiturate Therapy: Report of Case. A. J. Hadler, Boston.—p. 755.
- Device for Insuring Constant Gastric Suction. R. S. Hormell, Boston.—p. 759.
- Diagnosis and Treatment of Nutritional Deficiency. A. P. Meiklejohn, Boston.—p. 760.

Serum and Sulfapyridine in Pneumococcal Pneumonias.—According to Finland and his collaborators, most workers are agreed that a definition of the conditions under which the use of serum alone, sulfapyridine alone, or the combination of the two, will give the optimum benefit in pneumonia must await the accumulation of a large amount of data subjected to detailed and critical analysis. They present a résumé of the laboratory and clinical studies conducted at the Boston City Hospital during 1938-1939. The laboratory studies suggest that the combination of serum and sulfapyridine represents the optimum therapy in pneumococcal infections. Serum and sulfapyridine for adults with pneumococcal pneumonia are about equally effective when used alone or in combination, while for patients with the worst prognosis the combination of serum and sulfapyridine is more effective than is either agent alone. Instances in which the combined therapy was most effective included patients with bacteremia, particularly those over 50 years of age, those in whom treatment was started late and those with blood cultures yielding moderate or large numbers of pneumococci; patients in whom more than one lobe was involved; most patients over 60 years of age who had more than a mild infection, and patients with pneumonia due to types II, III or possibly V. Since sulfapyridine has a wide range of effectiveness, is simple to administer and is inexpensive, it is advisable to start treatment with it in every case of pneumonia as soon as the clinical diagnosis has been made, but only after blood has been taken for

culture and every effort has been made to obtain sputum for typing. In cases of severe involvement and in pneumonias complicating pregnancy and the puerperium, specific serum should be given as soon as the causative types have been determined or the results of blood cultures have become known. Patients in whom continued drug therapy may prove harmful are best treated with serum as soon as the type is known. They include patients with renal or hepatic disease and those with severe anemias or other blood dyscrasias. The establishment of a balance of antibodies will permit early withdrawal of the drug and thus minimize its ill effects. In all other cases due to specific types of pneumococci, serum should be used if there is no satisfactory response after from twenty-four to thirty-six hours of drug therapy.

Vitamin C Deficiency in Normal Adult.—Crandon and Lund report a case of a normal active adult who placed himself on a vitamin C free diet supplemented by the other known vitamins. No signs or symptoms of scurvy developed over a period of four months, during which the ascorbic acid content of the plasma, white cells and platelets fell to zero. An experimental wound made after twelve weeks of diet, when the plasma readings had been zero for at least forty-four days, showed good healing both grossly and microscopically when a biopsy specimen was taken eleven days later. No lack of intercellular substance could be seen. Analysis of the muscle removed showed no trace of ascorbic acid. Except for the changes in vitamin C concentration, extensive clinical studies revealed only a transient fall in hemoglobin (reversed by iron) and a fall in basal metabolic rate and body weight. While a single case does not permit positive conclusions, the authors suggest that in the absence of multiple avitaminosis, infection or growth factor, a plasma ascorbic acid level of below 0.5 mg. per hundred cubic centimeters is not necessarily dangerously low. Plasma ascorbic acid levels are a poor index of clinical vitamin C deficiency; they probably indicate the degree of saturation, which should not be confused with deficiency. The apparent ascorbic acid content of the circulating white cells and platelets may fall to zero without the appearance of clinical scurvy in an adult on an adequate intake of vitamins other than vitamin C.

New Orleans Medical and Surgical Journal 92:607-664 (May) 1940

- Plea for Medical Supervision and Control of Health Agencies of Louisiana. D. B. Barber, Alexandria, La.—p. 607.
- Interstate Endorsement. R. B. Harrison, New Orleans.—p. 609.
- Lobar Pneumonia: Pathology. A. V. Friedrichs, New Orleans.—p. 612.
- Id.: X-Ray Diagnosis. M. D. Teitelbaum, New Orleans.—p. 616.
- Specific Treatment of Pneumococcal Pneumonia: Review of Recent Literature and Analysis of 100 Cases. J. O. Weilbaecher Jr., New Orleans.—p. 618.
- Diagnosis of Gout. M. W. Matthews, Shreveport, La.—p. 624.
- *Hyperpyrexia: Indications and Complications with Evaluation of Results Based on 5,500 Fever Sessions. J. A. Trautman, New Orleans.—p. 630.
- Recent Advances in Study of Pulmonary Diseases. J. L. Wilson, New Orleans.—p. 637.

Hyperpyrexia.—During the last ten years hyperpyrexia has been used in the treatment of about fifty diseases, but it has proved beneficial in only a few. Trautman concludes from 5,500 artificial fever sessions given 985 patients at the Marine Hospital that the air-conditioned cabinet is an effective means of inducing therapeutic hyperpyrexia at fever levels up to 107 F. Only one death occurred among the 985 patients. Hyperpyrexia appears to be a valuable therapeutic adjunct in gonorrhea, syphilis and acute exudative conditions of the eye. Sufficiently good results have been obtained in such conditions as venereal lymphogranuloma, neuritis, arthralgia, myositis, acute and chronic infectious arthritis, acute rheumatic fever, chorea, undulant fever, meningococcal septicemia and asthma to warrant its further study. The contraindications are individual. Thirty different diseases have been treated by artificial fever at the Marine Hospital. The largest group, consisting of 567 patients, was that of gonococcal infections and their complications. Of 352 patients having five hour sessions at from 106 to 107 F., with an average number of 6.5 fever sessions, 304 received adequate observation and treatment and of these 252, or 82.5 per cent, recovered. Forty-two patients received sulfanilamide and, fail-

ing to respond to this, were given an average of 6.6 fever sessions at from 106 to 107 F. for five hours. Thirty-six of these were under adequate observation and treatment, and twenty-six, or 72.2 per cent, recovered. Of the 173 patients who received sulfanilamide or sulfapyridine and, failing to respond, were given an average of 2.6 ten hour sessions of fever at from 105 to 107 F. alone or with additional chemotherapy 156, or 94.5 per cent, recovered. In a follow-up study 275 of the 567 patients have been rechecked as to recurrence of gonorrhea. Of these patients 241 completed their treatment from one to five and a half years ago and thirty-four from three months to one year ago. Of the entire group, nine, or 3.2 per cent, had a recurrence. An additional eleven, or 3.9 per cent, were reinfectd. Encouraging results were obtained in a group of 129 patients having gonorrheal arthritis. Of these, 102 were markedly improved or recovered. A follow-up of fifty-two for from one to five and a half years showed that all except two had maintained their degree of improvement. Of 160 epididymal gonococccic complications all but five were promptly relieved by fever therapy. Ninety-eight cases of acute gonorrheal prostatitis showed excellent results from fever therapy. Excellent results were also obtained in gonococccic seminal vesiculitis, balanoposthitis, severe inguinal adenitis, periurethral abscess and pelvic inflammatory disease. Since no form of therapy in syphilis can be evaluated in five and a half years, which is the longest period that any of the 187 patients with this disease was observed, it is impossible to determine what the final results of fever therapy will be. Fever therapy combined with chemotherapy appeared to be of value in the treatment of dementia paralytica, tabes dorsalis, asymptomatic neurosyphilis, acute syphilitic eye conditions, arsenical intolerance and seroresistant syphilis.

North Carolina Medical Journal, Winston-Salem

1:229-280 (May) 1940

- The University of North Carolina: The Old Medical School: Dr. Richard H. Whitehead and Dr. Charles S. Mangum. J. K. Hall, Richmond, Va.—p. 229.
Regional Ileitis: Case Report. T. C. Bost, Charlotte.—p. 232.
Team Play for Health. H. F. Vaughan, Detroit.—p. 235.
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Treatment of Diabetes. D. E. Best, Goldsboro.—p. 241.
The Present Status of Anesthesia. A. C. Ambler, Asheville.—p. 244.
Surgery in Diabetes. W. H. Sprunt Jr., Winston-Salem.—p. 249.
The Private Medical, Dental and Nursing Practitioners. J. B. Sidbury, Wilmington.—p. 251.
Report of High Point Pellagra Clinic. F. R. Taylor, High Point.—p. 254.

Public Health Reports, Washington, D. C.

55:751-798 (May 3) 1940

- Effective Quarantine Surveillance. J. J. Sippy.—p. 751.
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Experimental Pathologic Changes Produced by Toxin of Clostridium Histolyticum in Animals. J. G. Pasternack and Ida A. Bengtson.—p. 775.

55:799-860 (May 10) 1940

- Existence and Use of Hospital Facilities Among Several States in Relation to Wealth as Expressed by Per Capita Income. E. H. Pennell, J. W. Mountin and Kay Pearson.—p. 822.

Southern Surgeon, Atlanta, Ga.

9:301-380 (May) 1940

- Surgical Aspects of Epilepsy Problem. C. Pilcher, Nashville, Tenn.—p. 301.
Pentothal Sodium Oxygen Anesthesia in Major Surgery. C. N. Carraway, Birmingham, Ala.—p. 312.
Simple Technic for Glass Ball Implantation Following Enucleation of Eyeball. R. O. Rychener, Memphis, Tenn.—p. 321.
Splenic Anemias. J. D. Rives, New Orleans.—p. 328.
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Premature Ageing Associated with Thyroid Dysfunction. J. K. McGregor, Hamilton, Ont.—p. 342.
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Consideration of Terminology and Management of Anal Fistulas. L. A. Buie, Rochester, Minn.—p. 351.
Prostatic Disease, with Special Reference to Various Causes and Types as Well as Their Treatment. R. B. Henline, New York.—p. 360.

Surgery, Gynecology and Obstetrics, Chicago

70:859-986 (May) 1940

- *Controlled Fluid Therapy; with Hematocrit, Specific Gravity and Plasma Protein Determinations. C. R. Drew, J. Scudder and J. Papps, New York.—p. 859.
*The Problem of Tuberculous Empyema Thoracis. A. M. Vineberg and M. Aronovitch, Montreal.—p. 868.
Infections of Meninges and Brain of Pharyngeal Origin. H. Brunner, Chicago.—p. 881.
Foreign Body Arthritis. J. A. Key, St. Louis.—p. 897.
*Effect of Subcutaneous Roentgen Therapy on Ovarian Physiology. J. Rock, M. K. Bartlett, A. G. Gauld and R. N. Rutherford, Boston.—p. 903.
Roentgenologic Study of Intestinal Obstruction. H. Brunn and J. Levitin, San Francisco.—p. 914.
Comparison of Fibrinogen and Prothrombin Levels of Maternal and Cord Blood at Delivery. A. Rush, Chicago.—p. 922.
Effects of Experimental Chronic Hyperparathyroidism on Kidney of Dog. P. R. Lehman, Philadelphia.—p. 925.
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Brachiothoracic Adhesions. J. F. Burton, Oklahoma City.—p. 938.
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Special Features in Management of Surgically Difficult Malignant Growths and Kindred Lesions of Pelvic Viscera. A. H. Curtis, Chicago.—p. 948.
Results of Treatment of Bilocular and Direct Inguinal Hernias. R. L. Ramos and C. C. Burton, Dayton, Ohio.—p. 953.
Pulmonary Embolism: Statistical Review of Cases from 1929 Through 1938. W. N. Graves, Duluth, Minn.—p. 958.
Vitalium Nails in Fractures of Hip. C. S. Venable and W. G. Stuck, San Antonio, Texas.—p. 964.
Results of Surgical Treatment of Recurrent Inguinal Hernia. C. C. Burton and R. L. Ramos, Dayton, Ohio.—p. 969.

Controlled Fluid Therapy.—Drew and his associates warn that in fluid therapy the hematocrit, the specific gravity and the plasma protein determinations should not interpret the state of dehydration without considering the history and the clinical picture of the patient. These procedures should aid, not substitute, other well established diagnostic procedures. Certain well defined patterns have recurred many times in a large series of such cases, and these have proved of great aid in the interpretation of the values of the aids in any specific case. In simple dehydration (whether from lack of fluid intake, diarrhea, excessive sweating, severe vomiting or shock of psychogenic, traumatic or postoperative origin) uncomplicated by hemorrhage there is a rise in the cell volume, the specific gravity of whole blood and of plasma and the protein percentage of plasma. In the first three of these conditions, treatment consists in administering fluids until these elevated values tend to approach normal. In shock, treatment to be rational must overcome the severe arteriolar and venular spasm, the capillary paralysis and dilatation and the great loss of circulating blood volume. Hypertonic sodium chloride is particularly effective in relieving the arteriolar spasm, in decreasing the viscosity of the blood and in aiding the return of fluid from the tissues into the circulation. It should be used cautiously in collapse due to dehydration. Adrenal cortex extract (eschatin) has proved valuable in restoring capillary tone, raising the blood pressure and redistributing electrolytes. To maintain any gain initiated by the sodium chloride and adrenal cortex extract blood transfusions are given as indicated by repeated blood studies. In hemorrhage there is an immediate fall in the specific gravity of the whole blood and a drop in the cell volume as determined by the hematocrit. The changes of the specific gravity of the plasma are less marked. Treatment consists of restoring blood volume by transfusions. It is of utmost importance to determine whether shock is complicated by hemorrhage or not. When not only loss of fluid but loss of protein exists, there is a tendency for the hematocrit curve to rise while the protein values continue to fall. In these cases the extreme hemoconcentration and shock must be combated by adequate administration of fluid, but the already lowered protein concentration must not be reduced to the edema level. When acute changes take place in chronic disease in which anemia already exists, and probably hypoproteinemia, any one of the ordinary tests—erythrocyte count, hemoglobin or hematocrit determination—will not evaluate the true state of hydration. A combination of all is necessary and particularly determination of the specific gravity of the plasma. Treatment consists in reducing the protein values to approximately normal levels and restoring the cellular elements of the

blood. Impending edema may be suspected by a gradually falling plasma protein level. When the hematocrit reading shows more than 60 per cent volume, it is unwise to give large quantities of hypertonic solutions, as this may bring into the circulation cell water rich in electrolytes, which is definitely toxic when present in the plasma in quantities greater than normal. The severely ill patient may not be able to utilize fluids of any type or quantity until the severe spasm of the peripheral vessels is relieved and the circulation of the sequestered blood in the paralyzed peripheral capillaries has returned. The only safe procedure is to measure the degree of hemoconcentration or anemia and the degree of dehydration or edema, institute the therapy suggested by the changes found, follow the curve of progress by repeated determinations and evaluate the state of hydration day by day or hour by hour if need be.

Tuberculous Empyema Thoracis.—Vineberg and Aronovitch state that patients with tuberculous empyema are often seen when operative procedures cannot be carried out. Prolonged, unsuccessful, palliative treatment is known to lead to a high mortality. There is a tendency to continue such treatment for months without benefit to the patient. The disease spreads, or the resistance is so lowered that more radical measures are impossible. Thirty-seven cases (2.2 per cent) of tuberculous empyema occurred in the authors' series of 1,371 cases. If the cases of artificial pneumothorax are not included, the incidence is reduced to 0.5 per cent. If only pneumothorax cases are considered, the incidence is 9.9 per cent. The development of a tuberculous empyema signifies the presence of a bronchopleural fistula. The longer the fistula remains, the greater are the chances of mixed pleural infection. Tuberculous empyema, like tuberculosis elsewhere, is not a static disease but one which is constantly changing. A tuberculous pneumonic disease is always associated with some infection of the visceral pleura. If the visceral and parietal pleural surfaces are in contact, this may result only in adhesions. When there is a large amount of exudation before adhesions are formed, the exudate collects in the pleural cavity as an empyema. If the pleural surfaces are separated, as in artificial pneumothorax, the exudate collects at the bottom of the pleural cavity, forming a pyopneumothorax. Pneumothorax predisposes to the formation of tuberculous empyema. In active pulmonary tuberculosis the most important preventive measure is the avoidance of effort, especially activities which cause sudden changes in intrapleural pressures. A sudden cough or straining effort may result in the rupture of an adhesion. Such adhesions may contain lung tissue or may rupture at their pulmonary attachments, thus creating bronchopleural fistulas. Adhesions under tension should be cut when possible. If pneumothorax is not efficient it should be abandoned and replaced by surgical collapse. If the pneumothorax is efficient it may be continued, but the activity of the patient should be drastically curtailed. The majority of their cases of tuberculous empyema developed in cases in which pneumothorax therapy was continued long after it should have been abandoned. Such continuance may result in spread of the disease from an uncollapsed cavity and/or tuberculous empyema secondary to ruptured adhesions and the resultant bronchopleural fistula. There were thirteen cases of unilateral pure tuberculous empyema complicating artificial pneumothorax. The duration of the pneumothorax to the time of onset of fluid ranged from nine days to sixty-five months. The time interval from the first appearance of fluid to the onset of empyema varied from two weeks to fourteen months and the period during which surgical intervention might have been beneficial varied from one month to two years. Surgical intervention is not as urgent in these cases as it is in those presenting mixed tuberculous empyema. Under conservative treatment several of these cases developed into cases of bilateral involvement and consequently became inoperable. Six of the cases were fatal, the course of the disease in three cases is downhill, in three the disease has been arrested and in one it is stationary. Of the arrested cases thoracoplasty was performed in two and one was cleared up by aspiration and air replacement. Two of the seven cases which became bilateral did so shortly after thoracotomy. There were four cases of unilateral mixed tuberculous empyema complicating artificial pneumothorax. The duration of the pneumothorax up to the time

of onset of fluid ranged from four to forty-eight months. Thoracoplasty could have been performed at the onset. In only one case did the period of operability extend to three months. All the patients died soon after the onset of the empyema—one within five weeks. Two of the four cases became bilateral; in one case a thoracotomy and phrenic exeresis were performed and the patient survived for one year. Of the twenty-seven cases of tuberculous empyema with bilateral involvement nine were unilateral when first seen; nineteen presented pure and eight mixed empyemas. In twenty-two cases empyema occurred during the course of artificial pneumothorax and in five it resulted from spontaneous pneumothorax. There have been seventeen deaths, the course in seven is downhill, in two the disease has apparently been arrested and one case has not been traced. In both of the arrested cases thoracoplasty has been done; one of these presented a mixed and the other a pure tuberculous empyema. It is significant that five of the six patients who were cured had undergone thoracoplasty. The authors are convinced that many of the patients would have been benefited by thoracoplasty had the procedure been instituted sooner.

Roentgen Therapy and Ovarian Physiology.—Rock and his co-workers used subcastrative doses of x-rays over the ovaries and pituitary in the treatment of twenty-seven patients with menstrual disorders with or without sterility. Twenty-two had proved anovulatory flow or flow which was predominantly anovulatory with occasional ovulatory cycles. No endometrium was obtained on repeated efforts from one woman, and this was presumed to be an instance of primary pituitary deficiency. Five patients had cyclic ovulation but with associated disturbances: sterility, polymenorrhea or hypermenorrhea. None of these five patients was relieved or cured. Twelve of the patients with faulty ovulation were cured, and the treatment of ten resulted in failure. If an ovulatory cycle could not be proved within three months after the completion of roentgen therapy the case was considered a failure. Patients considered cured were those in whom biopsies demonstrated ovulatory cycles three months or more after roentgen therapy, those of sterility in which pregnancy proved ovulation or those who acquired after treatment the menses of menstruation with periodicity of characteristic flow. Three, or 13.6 per cent, of the patients became pregnant. The figures of cure are well above the most optimistic results reported from endocrine treatment alone. Many of the cured women were under endocrine treatment before roentgen therapy was tried. Regular ovulatory cycles began within from two to ten weeks following the first roentgen treatment. No apparent harm resulted when a subsequent series of treatments with the same dosage was given after an interval of from two or three months. Three doses, each from 50 to 60 roentgens, given over the ovaries seem harmless to the ovaries of women less than 35 years of age. Women older than this may suffer temporary or permanent cessation of follicular function. The authors believe that roentgen treatment of the pituitary offers no additional benefit. To explain the good results, they postulate a destruction by x-rays of persisting mature follicles, thus allowing a new cycle of follicle development and maturation to take place.

United States Naval Med. Bulletin, Washington, D. C. 38:151-296 (April) 1940. Partial Index

- Treatment of Luetics in the Destroyers of the Battle Force. W. E. Eaton.—p. 164.
- Some Trends in Syphilis. R. P. Parsons.—p. 168.
- Syphilis of Skull: Among Aleuts and the Asian and North American Eskimo About Bering and Arctic Seas. R. C. Holcomb.—p. 177.
- Metrazol Therapy in Schizophrenia. R. G. Osterheld.—p. 201.
- Some Pollens of Hawaii: Botanic Characteristics in Relation to Allergy. L. H. Roddis.—p. 206.
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- Treatment of Chemical Warfare Casualties. B. H. Adams.—p. 218.
- New Method for Determining Night Blindness: Preliminary Report. E. E. Metcalfe.—p. 231.
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- Elimination of Oral Sepsis. C. W. Schantz.—p. 246.
- Visual Deficiency: Incidence at the United States Naval Academy and Measures Taken for Its Reduction. R. Hayden and O. R. Goss.—p. 252.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Experimental Pathology, London

21:67-116 (April) 1940

- Mechanism of Antibacterial Action of Mercury. P. Fildes.—p. 67.
Relation of *p*-Aminobenzoic Acid to Mechanism of Action of Sulfanilamide. D. D. Woods.—p. 74.
Inhibition of Action of Sulfanilamide in Mice by *p*-Aminobenzoic Acid. F. R. Selbie.—p. 90.
Rapid Methods for Determination of Urea in Blood and Urine. L. D. Scott.—p. 93.
Quantitative Investigation of Changes in Antigenic Properties in Course of Iodination of Horse Serum Globulin. A. Kleczkowski.—p. 98.
Effect of Vaccination of Guinea Pigs with Vole Acid-Fast Bacillus on Subsequent Tuberculous Infection. A. Q. Wells and W. S. Brooke.—p. 104.
Cultivation of Lymphocytic Choriomeningitis in Tissue Culture. F. O. MacCallum and G. M. Findlay.—p. 110.

British Journal of Radiology, London

13:149-184 (May) 1940

- Variation with Wavelength of Biologic Effect of Radiation (Measured by Inhibition of Division in Tissue Cultures). I. Lasnitzki and D. E. Lea.—p. 149.
Treatment of Metastases. Margaret C. Tod.—p. 163.
Osteochondritis Vertebralis (Calvé) Associated with Pathologic Changes in Other Bones. R. Fawcitt.—p. 172.
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British Journal of Surgery, Bristol

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- Colles' Fracture. J. H. Mayer.—p. 629.
Further Review of Interinnomino-Abdominal Operation: Eleven Personal Cases. G. Gordon-Taylor.—p. 643.
*New Conception of Parathyroid Function and Its Clinical Application: Preliminary Report on Results of Treatment of Generalized Fibrocystic and Allied Bone Diseases and of Rheumatoid Arthritis by Aluminum Acetate. A. J. Helfet.—p. 651.
Annular Pancreas. G. J. Cunningham.—p. 678.
Osteo-Arthritis of Hip. L. W. Plewes.—p. 682.
Surgical Treatment of Midesophageal Carcinoma. H. Wookey.—p. 696.
Birth Fracture of Tibia. B. McFarland.—p. 706.
Sialo-Angiectasis. G. Swinburne.—p. 713.
Post-Traumatic Cerebrospinal Rhinorrhea: Case Report. W. Gissane and B. K. Rank.—p. 717.
Muscle Fibers of Anal Submucosa, with Special Reference to Pecten Band. J. Fine and C. H. W. Lawes.—p. 723.
Adrenal Cortical Hyperplasia, Associated with Pseudohermaphroditism: Case. I. D. Miller and P. J. Kenny.—p. 728.
Technic of Brachial Plexus Block Anesthesia. J. Patrick.—p. 734.
Cancer of Stomach as Surgical Problem. R. T. Payne.—p. 740.
Double Gallbladder: Report of Case and Review of Thirty-Eight Cases. E. Stolkind.—p. 760.
Submarine Salvage: Air in Submerged Submarine: Means of Exit When Submerged and Disabilities of Survivors. S. Jenkinson.—p. 767.
Deep Diving. P. K. Fraser.—p. 781.

Parathyroid Function.—Helfet studied the theory that solution of parathyroid exerts its primary effect on the phosphorus metabolism and not on the control of the level of blood calcium. The theory suggested is (1) that solution of parathyroid controls the inorganic phosphate level of the blood, (2) it prevents this level from rising to a degree which would upset any metabolic process in which the phosphates are concerned, (3) that an accumulation of phosphate in the blood is a stimulus to increased secretion of solution of parathyroid, (4) that solution of parathyroid effects phosphate control by stimulating excretion of phosphate by the kidney and by mobilizing calcium ions from the storehouse in the bones and (5) that, vice versa, if the parathyroids are removed the body will be unable to deal adequately with the blood phosphate. It seems reasonable that in the treatment of generalized fibrocystic diseases and rheumatoid arthritis an attempt should be made to reduce the absorption of phosphorus and thus remove the stimulus to the overproduction of solution of parathyroid. A method for reducing phosphorus absorption consisted in giving daily an amount of aluminum acetate with a phosphate-combining power equivalent to from 150 to 220 mg. of calcium. Children were given a correspondingly smaller dose. A fourth of this daily dose was taken after each meal, so that the aluminum could combine with the phosphate of all food eaten during the day. Too large a

dose of aluminum acetate can produce rickets. No additional form of therapy was used. The patients were on their normal diets. In order to give them some source of calcium and vitamin D they took not less than 1 pint (0.5 liter) of milk a day. Undoubted improvement was produced in three of four cases of generalized fibrocystic osteitis, indicating that the phosphorus radical is responsible for the excessive stimulation of the parathyroids. The results of aluminum acetate therapy have been most encouraging in twelve cases of rheumatoid arthritis and three of spondylitis ankylopoietica. Some of these patients had previously received gold therapy or had a focus of sepsis removed, all without effect. Of these fifteen patients twelve improved in color, ten gained weight, nine were markedly relieved of joint pains and in two there was no improvement. The subsidence of symptoms in some joints was almost dramatic and, except for joints which were ankylosed when treatment commenced, motion improved. Two patients who had typical deformities of the fingers could, after four months of treatment, actively correct this. In some the spindle-shaped swellings of the finger joints disappeared, although no physical therapy was given. However such therapy, carefully supervised, should enhance the value of treatment with aluminum acetate. Eight patients suffering from Paget's disease improved in color and in weight on this therapy. They could walk farther and do more before fatigue set in. Bone pain became less frequent and less intense and in some cases disappeared. In two cases controlled roentgenograms suggested a slow change toward normality. There was less expansion, the outline of the cortex seemed more definite and the density of the bone was reduced. In spite of clinical improvement, there was no appreciable change in the roentgenograms of any other patient. The author hopes that the results are promising enough to open up a new field of investigation and a new line of treatment for these distressing diseases.

British Medical Journal, London

1:679-718 (April 27) 1940

- Some Notes on Abdominal Injuries. G. G. Turner.—p. 679.
Dental Hypoplasia and Caries Among the Children of Finnish Lapps. Helen Mellanby.—p. 682.
Abduction Splint Used in War Surgery in China. K. H. Gillison.—p. 686.
Hypovitaminosis C and Pulmonary Tuberculosis. G. S. Erwin, R. Wright and C. J. Doherty.—p. 688.
Diagnosis of Joint Injuries. J. C. Flood.—p. 689.

Edinburgh Medical Journal

47:297-368 (May) 1940

- Blood Pressure, Normal and Abnormal. D. M. Lyon.—p. 297.
Fractures of Neck of Femur: Their Treatment: Review. W. Mercer.—p. 317.
Influence of Certain Antacids on Acidity of Human Gastric Juice, with Special Reference to Magnesium Trisilicate. D. Wyllie.—p. 336.
Studies in Method and Standardization of Blood Examination: VI. Blood Platelet Film Count. S. Hay.—p. 345.
Psychologic Aspect of Physical Education. R. B. Campbell.—p. 351.

Glasgow Medical Journal

15:73-104 (March) 1940

- Problems of Vision in Aviation. A. J. Ballantyne.—p. 73.
Congenital Absence of Tears. W. J. B. Riddell.—p. 85.

Journal of Hygiene, London

40:125-252 (March) 1940

- Measurements of Ventilation of Dwellings. C. G. Warner.—p. 125.
Anaerobic Organism Associated with "Bone Taint" in Beef. R. B. Haines and W. J. Scott.—p. 154.
Bactericidal Action of Ultraviolet Light. D. E. Lea and R. B. Haines.—p. 162.
Serologic Types of Hemolytic Streptococci in Relation to Epidemiology of Scarlet Fever and Its Complications. H. L. de Waal.—p. 172.
Pleuropneumonia-like Organisms: Further Comparative Studies and Descriptive Account of Recently Discovered Types. Emmy Klieneberger.—p. 204.
Association of Pleuropneumonia-like Organism L 3 with Bronchiectatic Lesions in Rats. Emmy Klieneberger and Dorothy B. Steabben.—p. 223.
Effects of Morphine, Diacetylmorphine and Some Related Alkaloids on Alimentary Tract: Part IV. Rectum. G. N. Myers.—p. 228.
New Type of Salmonella (Salmonella Ballerup) with Vi Antigen. F. Kauffmann and Ebba Möller.—p. 246.

Journal of Laryngology and Otology, London

55:143-196 (March) 1940

- Disorders of Mouth of Esophagus in Syndrome of Plummer-Vinson (Dysphagia with Anemia). P. G. Gerlings.—p. 143.
Formation of Passavant's Bar. R. H. Townshend.—p. 154.

Journal of Neurology and Psychiatry, London

3:101-196 (April) 1940

- Psychiatric Comparison of Artificial Menopause and Effects of Hysterectomy. A. J. Lewis and J. Jackson.—p. 101.
Antibodies to Brain and Their Relation to Demyelination. L. C. Kolb and B. Bolton.—p. 111.
Role of Potassium in Myasthenia Gravis. J. N. Cumings.—p. 115.
Atrophy of Thalamus in Case of Acquired Hemiplegia Associated with Diffuse Porencephaly and Sclerosis of Left Cerebral Hemisphere. W. E. le Gros Clark and D. S. Russell.—p. 123.
Acoustic Tumors. H. Olivecrona.—p. 141.

Lancet, London

1:771-818 (April 27) 1940

- *Sciatica and Intervertebral Disk. J. Pennybacker.—p. 771.
Carcinomatosis of Bone Difficulties in Diagnosis. A. M. G. Campbell.—p. 777.
Blood Viscosity in Cardiac Failure: Its Modification by Administration of Calcium Gluconate. A. S. Rogen.—p. 780.
Lumbar Curve in Women: Changes Produced by Displacement of Center of Gravity. L. K. Klinderová.—p. 782.
Pfeiffer Bacillus Meningitis: Unsuccessfully Treated by Chemotherapy. J. C. H. Mackenzie, A. P. M. Page and E. M. Ward.—p. 785.

Sciatica and the Intervertebral Disk.—Pennybacker's report is concerned with thirty consecutive cases of sciatica treated in the Nuffield Department of Surgery, Oxford, since May 1939. Since all the patients were operated on within the past nine months, it is too early to speak of ultimate results. The most dramatic relief was obtained in twenty-one cases of severe sciatica in which a loose fragment of prolapsed nucleus pulposus was removed. Most of the patients began to walk seventeen or eighteen days after operation, and although there was some soreness and stiffness of the back at first this improved rapidly with graduated exercise, and by the end of a month the patients were free from symptoms. Of the five patients who had herniation of the annulus fibrosus, two experienced immediate relief and had a painless convalescence. In three others, the results of operation were not satisfactory. The two patients with the cauda equina syndrome were completely free from pain after operation, but recovery of sphincter control and of the sensory and motor functions has been slow. Of the remaining cases, one was a negative exploration, but the patient has benefited considerably from the laminectomy; in the other, a fibro-angioma was removed from the intervertebral canal, but this has not completely relieved the pain. In no case has there been any aggravation of the symptoms or neurologic signs after operation. It appears that operation is advisable in three groups of patients: (1) in cases of acute sciatica which send the patient to bed and in which, despite adequate rest for from five to six weeks, the severe pain persists; (2) in frequently recurring attacks, which may be severe enough to send the patient to bed or to make his life a misery for three or four weeks every year; (3) in some cases of chronic continuous sciatica due to a prolapsed nucleus pulposus, in which the results of operation are no less satisfactory than in the acute and severe cases. But others in this group will be due to a herniated annulus fibrosus, and the results in these have not been as uniformly satisfactory as in those due to prolapse of the nucleus pulposus. Until it is possible to differentiate these varieties by the history and examination, or by myelography, some doubt must remain about the value of operation.

Medical Journal of Australia, Sydney

1:535-572 (April 20) 1940

- Study of Juvenile Gout in Patient Suffering from Chronic Erythronuclear Anemia of Obscure Origin, Together with Observations on Physical State of Uric Acid in Blood and Effects of Splenectomy. C. G. Lambie.—p. 535.

Tubercle, London

21:153-184 (Feb.) 1940

- Effect of Sulfanilamide on Growth of Acid-Fast Bacilli in Vitro. H. C. Ballon and A. Guernon.—p. 153.
Port of Entry, Primary Focus and Contact Infection. S. R. Gloyne.—p. 161.

Revue Française de Pédiatrie, Paris

15:313-392 (No. 4) 1939

- *Pathology of Liver in Children. P. Wöringer.—p. 313.
Kernicterus of the Newborn. M. Péhu and M. Dollet.—p. 349.

"Lipogenic Dyshepatia" in Children.—Under this name Wöringer discusses a minor liver disorder of children that receives scant attention in the textbooks. Frequently, though not exclusively, found in pampered children of preschool and school age, it involves the enlargement of the liver and is characterized by abdominal pain, nausea, vomiting, anorexia, pallor, headache, dipsois and the absence of fever. It is primarily due to a metabolic dysfunction and yields to a rational fat excluding regimen. However, other therapeutic aids may be employed adjutantly. The sudden onset of the symptoms may confuse diagnosis. The significant factor is the size of the liver. Examined with the patient lying on his back, the head slightly raised and the knees flexed, the liver presents itself to the experienced touch as uniformly smooth and plastic, with a well defined edge but exceeding the dimensions of 2 cc. below the costal margin, accepted by the author as the norm for normal livers in children of that age. Pathologic enlargements of the liver may be found to attain to 9 cc. below the costal arch. Tests for bilirubin, albumin, sugar and acetone bodies are negative. Fats chiefly productive of hepatic dysfunction are egg yolk, cocoa butter in chocolate, animal fats and milk fats in the various forms. Different persons are affected differently by different fats. Vegetable oils were found to be less harmful; olive oil was proved to be useful in maintaining necessary fat metabolism. Hereditary diathesis, previous infectious diseases and sedentary habits may enter into the pathologic picture. Whereas symptoms may be promptly checked by correct diet, it may take several weeks and months before the liver returns to normal size. It may long require dietary supervision in order to protect it against recurrence. The author stresses the diagnostic value of correct liver palpation, offers a detailed dietary program and believes, on the basis of familial and other investigations, that a connection exists between unrecognized and neglected "lipogenic dyshepatia" and the evolution of biliary calculi in later life.

Schweizerische medizinische Wochenschrift, Basel

70:317-336 (April 13) 1940

- Disturbances of Water Exchange in Nontropical Sprue. H. W. Holz.—p. 317.
*Early Colposcopic Diagnosis and Prevention of Carcinoma of Os Uteri. H. Hinselmann.—p. 320.
*Electric Shock Therapy in Psychiatry. M. Müller.—p. 323.
Comparative Study of Brachial Arterial Tension, Retinal Arterial Tension and Ocular Tension During Insulin Shock. R. de Montmollin and E. B. Streiff.—p. 326.
Determination of Reduction of Oxyhemoglobin in Blood of Living Human Subjects: New Method and Possibility of Its Use for Clinical Diagnosis. L. Rosa.—p. 328.
Treatment of Cervical Catarrh. W. Schellenberg.—p. 329.

Colposcopy and Prevention of Carcinoma of Os Uteri.—Hinselmann, whose experience with colposcopy covers a period of fifteen years, maintains that it is superior to ordinary speculum examination. The degree of superiority is dependent on the apparatus and the experience of the examiner. For routine use in every gynecologic examination he recommends a colposcope giving a 10.5 fold magnification. The inspection should be binocular and the distance from 14 to 19 cm. He distinguishes between simple and extended colposcopy. Extension of colposcopy involves (1) histochemical aids and (2) optical aids. In performing a colposcopy, the author uses the simple method with ordinary mixed light followed by monochromatic illumination. The acetic acid test is applied and the cervix again examined with the aid of the monochromatic illumination and once more with the ordinary light. Schiller's iodine test is followed by examination with monochromatic lights. In this extended form colposcopy requires more time than the speculum examination. Cornified atypical epithelium can be detected with a less than tenfold magnification; the diagnosis, however, of atypical epithelium without cornification or of cone formation is not possible with a fivefold magnification. Thus it is apparent that cases cannot be sorted out with low magnifications. Colposcopy complemented by the use of chemical reagents provides such conclusive evidence as to make numerous biopsies unneces-

sary. The detection of the early changes makes possible early treatment, thereby avoiding not only extensive operations but also the development of the advanced forms of carcinoma.

Electric Shock Therapy in Psychiatry.—Disadvantages of metrazol shock therapy induced Müller to try the electric shock therapy introduced by Cerletti and Bini. The convulsions are produced by means of an alternating current of from 400 to 800 milliamperes, a tension of from 60 to 130 volts and a passage time of from 0.1 to 0.5 second. A preliminary test determines the conduction resistance on the head of the patient. The level of the resistance serves as the basis for the computation of the shock dose, although there was no close relationship between the conduction resistance and the current strength necessary for the elicitation of a shock. Not only does the resistance differ individually but it changes in the same patient. The "shock dose" has a tendency to be constant or to increase slightly. It was usually between 80 and 110 volts. Increase in tolerance in the course of treatment rarely exceeded 10 to 16 volts. The tension should not be over 130 volts and the passage time of the current should ordinarily not exceed 0.1 second. If the voltage is inadequate for the production of a complete attack, the time may be increased to 0.2 second. The author employed electric shock therapy in thirty-two cases, the total number of shocks being 413. The author gained the impression that the method was not inferior to other methods of shock therapy. The electric shock therapy may be combined with insulin therapy for schizophrenic patients. The chief advantage of the electric shock is that it is free from the fright and anxiety associated with other forms of shock therapy. Patients who previously had received metrazol shock corroborated this. The author is of the opinion that the electric shock therapy may become preferable to other forms of shock therapy.

Archivio di Ortopedia, Milan

55:433-551 (Dec. 31) 1939. Partial Index

*Joint Analgesia in Orthopedics. L. Bitossi Coronedi.—p. 473.

Joint Analgesia in Orthopedics.—Bitossi Coronedi established in experiment that joint pain originates in the periarticular tissues and that it can be controlled by local infiltrations of a solution of procaine hydrochloride. He treated twenty-nine cases of joint stiffness due to such causes as prolonged immobilization in fractures, trauma, disease of the joint and especially gonorrheal arthritis by articular anesthesia combined with physical therapy. Physical therapy alone had previously failed. The treatment consisted of local infiltration with an 8 per cent solution of procaine hydrochloride in amounts of from 6 to 7 cc. The analgesic effect appeared within half an hour and lasted for several days. Analgesia of the joint was as effective and lasting when the infiltration was made of the periarticular tissues alone as when made into the periarticular tissues and into the joint cavity. The effects were diminished if the infiltration was made into the articular cavity only. Joint function, where stiffness was caused by painful contracture, was reestablished after one infiltration followed by mobilization. In grave cases of joint stiffness from immobilization, trauma or arthritis the combined treatment of repeated injections administered at long intervals up to a total of from two to four, and physical therapy gave satisfactory functional results in the majority of cases. The treatment failed in the presence of established anatomic alterations of the joint such as destruction of the cartilages or bony ankylosis.

Bol. de la Soc. Cubana de Pediatría, Havana

12:77-136 (March) 1940. Partial Index

*Nutritional Disturbances from Avitaminosis B. A. J. Aballi and A. Escobar Aces.—p. 91.

Nutritional Disturbances from Avitaminosis B.—Aballi and Escobar Aces studied avitaminosis B in sixty-three infants. There were typical or atypical symptoms of pellagra and beriberi with or without cutaneous lesions in forty-three and nutritional and gastrointestinal disturbances in twenty. The majority of the patients had moderate or acute gastrointestinal and nutritional disturbances which were controlled by proper diet combined with vitamin B therapy (vitamin B, nicotinic acid and vitamin B₁₂, either alone or combined). Enteric infections assume a severe character in the presence of avitaminosis and frequently

lead to grave and even fatal toxicosis. In the group of patients with acute or subacute avitaminosis B, thirteen died, four showed no change and twenty-five improved rapidly. The twenty-four patients who received early treatment made a quick recovery. The symptoms were readily controlled and the weight of the infants increased, on an average, 1 pound a week. Necropsy in ten cases revealed extensive microcystic colitis, fatty degeneration of the liver and serous hepatitis. Cases in which the mucosa of the small intestine was slightly edematous and the seat of small ulcerations were rare.

Revista Médica Latino-Americana, Buenos Aires

25:621-732 (March) 1940. Partial Index

*Vitamin C in Liver Diseases. J. M. González Galván.—p. 644.
Malignant Endocarditis Lenta of Early Meningeal Form. L. Clatrot Sagastume and N. J. Zurutuza.—p. 651.

Vitamin C in Liver Diseases.—González Galván observed that certain complications of liver disease are caused by avitaminosis C and can be improved or controlled by intravenous injections of vitamin C in doses of from 0.05 to 0.1 Gm. The results are satisfactory when the vitamin is administered along with the correct treatment of the disease. In the group of patients observed by him the vitamin C therapy controlled gastric hemorrhages due to liver insufficiency, increased the diuresis in ascitic cirrhosis, improved the general condition of patients in cases of hepatitis associated with avitaminosis and favorably modified the course of toxic hepatitis. To obtain satisfactory results the treatment should be given over an extended period. The treatment does not influence the course of ascitic cirrhosis of the liver. The diuretic effects on the edema and the general condition of patients with ascitic cirrhosis are transient.

Archiv für klinische Chirurgie, Berlin

198:361-480 (March 2) 1940. Partial Index

*Recent Contributions to Surgical Treatment of Pancreatic Cysts. V. Kafka.—p. 361.

*Renal Hemangiomas. B. Pitlöffy-Szabó.—p. 371.

*Report on Cases of Mammary Carcinoma Observed at Two Clinics in Bonn Between 1928 and 1935. E. Derra and F. Blittersdorf.—p. 377.

Significance of Fibrin in Bacterial Infections. A. Plenk.—p. 402.

Pathogenesis and Pathologic Anatomy of Perthes' Disease. T. von Tapavicza.—p. 410.

Gastritis Phlegmonosa. G. Beyer.—p. 463.

Repeated Development and Perforation of Peptic Ulcer of Jejunum After Anterior Antecolic Gastro-Enterostomy with Braun's Anastomosis. M. Matyas.—p. 474.

Surgical Treatment of Pancreatic Cysts.—Kafka describes two cases of pancreatic cyst. A woman aged 58 with a pseudocyst was treated by means of a primary pancreaticocystogastrostomy. The healing tendency seemed favorable, but the patient succumbed to a sudden hemorrhage into the intestinal tract on the ninth day after the operation. The second patient was a woman aged 56 with a pseudocyst. The first intervention resulted in a fistula and a cavity in the pancreas. A subsequent pancreaticocystojejunostomy resulted in a complete cure. The author reviews the various surgical methods and evaluates the various types of anastomosis. These operations were palliative and were regarded free from danger. The fatal outcome in one of the author's cases demonstrated the possibility of complications which may arise from the anastomosis of a pancreatic cyst with the intestinal tract. The author advises against a primary anastomosis of the cyst, particularly with the stomach. Such an intervention would be permissible only in the form of Jedlick's operation; that is, a lateral pancreaticogastrostomy with external drainage of the residual cavity. Otherwise, marsupialization is to be preferred. A persistent fistula may be anastomosed with the gastrointestinal tract. If x-ray examination or laparotomy reveals, in addition, a residual cavity, it may be treated by a wide cystenterostomy, in which the danger of obliteration of the stoma does not exist to the same extent as in the presence of a simple anastomosis of the fistula with the digestive tract.

Renal Hemangiomas.—According to Pitlöffy-Szabó, hemangiomas of the kidneys are rare, only three cases having been detected among 251 renal tumors at the urologic clinic of the University of Budapest. One of these tumors was very small and had unusual localization. A decapsulation for a

localized nephritis, suspected because of a persistent hematuria, failed to disclose the cause of the bleeding. Continued hematuria and increasing anemia necessitated a nephrectomy. Inspection of the pelvis of the kidney after formaldehyde fixation disclosed a protrusion of the mucosa twice the size of a pinhead. Sectioning revealed in the wall of the renal pelvis a structure dissecting the muscular layer, which consisted of blood-filled cavities separated by septums of connective tissue. The lumens were filled with erythrocytes. Since the substance of the kidney showed no change that could have been responsible for the hematuria, this extremely small cavernous hemangioma must have been the source. In the second case a cavernous hemangioma the size of a hazel nut was discovered in the region of a papilla near the upper pole. The third patient had a cavernous angioma on the posterior surface of the left kidney, which penetrated into the renal tissue to a depth of 1 cm. Renal hemangiomas always require surgical intervention. Decapsulation is unsatisfactory because it often has to be followed by nephrectomy. Nephrotomy is valuable chiefly for the diagnosis, although it may also permit the removal of a hemangioma in a renal papilla. It may, however, be followed by postoperative hemorrhage. The author therefore considers nephrectomy preferable for renal hemangioma. Diagnosis is possible only after exposure of the kidney because hematuria is frequently the only symptom and pyelography fails to disclose the source.

Breast Carcinoma.—Derra and Blittersdorf analyzed the results in 313 cases of malignant mammary tumors (308 carcinomas and five sarcomas) treated at two hospitals in Bonn from 1928 to 1935. The 308 cases of carcinoma comprise 180 treated for the first time, seventy-nine treated for recurrence and metastases and forty-nine hospitalized for prophylactic postoperative irradiation after surgical treatment elsewhere. Investigations on the etiologic significance of hereditary predisposition, trauma, mastitis, generative capacity and goiter were negative. There was a noticeable increase in the number of patients who asked medical advice during the first three months and a decrease in those who had waited longer. The treatment of choice was the radical operation. Palliative operations were not always avoidable. The total surgical mortality was 5 per cent, that of the radical operation 4.4 per cent. The length of survival was good. Results were poor in the seventy-nine cases of recurrence and metastases. Recurrence took place in approximately 80 per cent of the cases during the first three years, but a definite estimate regarding recurrence is possible at the earliest after five years. Recurrence took place as late as eleven and fourteen years after the primary operation. Postoperative irradiation did not improve the therapeutic results. The suggestion has been made that the tumor be extirpated and the regional metastases combated by roentgen irradiation. This point of view is to be deplored. The present survey gives support to the rationale of the radical operation. The earlier it is performed, the better are the results.

Klinische Wochenschrift, Berlin

19:193-216 (March 2) 1940

Summer and Winter Rhythm in Carbohydrate Metabolism of Warm Blooded Animals as Cause of Divergences in Surgically Induced Hyperglycemia. F. Chrometzka and G. Beutmann.—p. 196.
Nitrite Content of Sputum, Gastric Juice and Urine. J. Várady and G. Szántó.—p. 200.

Vitamin C and Carotene Content in Serum of Slaughterhouse Animals and Fowls. Marie Maxim.—p. 203.

*Vitamin B₁ Tolerance Tests. S. Molnár and M. Horányi.—p. 204.

A Plea for More Rapid Centrifuges. W. Schmidt-Lange.—p. 206.

Vitamin B₁ Tolerance Tests.—Molnár and Horányi tested the vitamin B₁ metabolism of thirty-two patients and nine controls by observing the increase of this vitamin in the blood after injection. The clinical pictures of twenty-four of these were those of ulcer, malignant tumor, cachexia associated with a continuous high pyrexia, and exophthalmic goiter. The procedure employed was a preliminary test of the vitamin B₁ content of the blood, followed by an intravenous injection of 1,000 micrograms of vitamin B₁, an amount equivalent to the normal daily need of a healthy person. The vitamin B₁ blood level was then measured successively after five, ten, fifteen, thirty and sixty minutes. Concurrently, the vitamin B₁ level in the urine

was examined for three hours after the injection. Comparison of the vitamin B₁ level in the blood of the two groups disclosed a scarcely appreciable increase in the clinical cases, the average amounting to 28 micrograms per hundred cubic centimeters as compared with a 10 microgram average in the control group. The presence of vitamin B₁ in the urine was likewise lower than in the control group, but no conclusions could be based on the percental differences. Special tests were made on six patients: three with ulcers but without B₁ deficiency, two with pernicious anemia and one with afebrile panmyelophthisis. Vitamin B₁ deficiency in ulcer cases was found to be due not to a specific cause but to vitamin B₁ impoverishment inherent in the special diet. No vitamin B₁ deficiency was observed in the three other cases. Additional tests made in two cases of Addison's disease produced contradictory results. The author believes that most of the injected vitamin B₁ which is not accounted for in the blood or urine is converted into cocarboxylase and either passes into the blood stream or is deposited in the tissues.

Zentralblatt für Gynäkologie, Leipzig

64:433-464 (March 16) 1940

Present Status of Therapy of Genital Carcinoma. O. Bokelmann.—p. 434.

*Casuistic Contribution to Clinical Aspects of Dysgerminoma Ovarii. R. Kramberg.—p. 439.

Intra-Abdominal Hemorrhage in Myomatous Uterus During Delivery. K. Jäger.—p. 443.

Successful Operations for Thrombi: Two Cases. W. Schmidt.—p. 446.

Ovarian Dysgerminoma.—Dysgerminoma ovarii occupies a unique place among ovarian cancers because, unlike granulosa cell tumor or arrhenoblastoma, it does not possess a hormonal function. Eighty-five cases have thus far been observed. Dysgerminoma originates in the not yet differentiated germinal epithelium and, like the original tissue, does not exert a hormonal effect. The germinal epithelium loses the capacity to become differentiated and does not tend in the female, male or hermaphroditic direction but in an asexual one. The tumors vary in size between hardly visible ovarian infiltrations and giant tumors. The cells are fragile and exhibit extremely active karyokinesis. Metastases take place into the pleura, the omentum, the peritoneum and the other ovary. The rapid growth, the metastases and the relapses indicate an unfavorable prognosis. Kramberg reports that a woman aged 24 presented a history of amenorrhea followed eighteen months later by visible abdominal enlargement. A hemorrhage of four weeks' duration called for operative intervention and removal of a dysgerminoma of the right ovary weighing 2,300 Gm. There were no metastases or enlarged lymph nodes. She was given roentgen and radium radiation. At a follow-up examination a year after she was well.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

84:1197-1284 (March 30) 1940

Sympathetic Neuroses. L. van der Horst.—p. 1199.

*Exanthematous Typhus. P. H. Kramer.—p. 1206.

Critical Evaluation of Partial Thoracoplasty in Combination with Paralysis of Diaphragm on One Side. R. Finaly.—p. 1215.

Case of Anthrax with Lesions in Pharynx and Larynx. P. Belgraver and J. van Woerden.—p. 1221.

Preparation and Shipment of Blood Group Serums. A. Pondman.—p. 1225.

Treatment of Pneumococcal Disorders with Sulfapyridine and Serum. J. Mulder.—p. 1232.

Exanthematous Typhus.—Kramer directs attention to the increased danger of outbreaks of exanthematous typhus under the present war conditions in Europe. He reproduces a map showing its incidence during 1939 in the countries of eastern Europe, particularly Poland. This eastern European exanthematous typhus is the true louse typhus; that is, it is transmitted by body lice, the digestive tract of which harbors *Rickettsia prowazekii*. The author reviews the clinical aspects, citing his own observations in the course of the epidemic of 1919 in Rotterdam. He stresses the difficulties encountered in the differentiation of exanthematous typhus from typhoid and from meningococcal septicemia. Delousing and active immunization are the most powerful weapons against exanthematous typhus. Its treatment is symptomatic, neither chemotherapy nor convalescent serum having produced therapeutic results.

JOURNALS ABSTRACTED IN THE CURRENT MEDICAL LITERATURE DEPARTMENT, JANUARY-JUNE 1940

Titles have been listed or Abstracts made of important articles in the following journals in the Current Literature Department of THE JOURNAL during the past six months. Any of the journals, except those starred, will be lent by THE JOURNAL to subscribers in continental United States and Canada and to members of the American Medical Association for a period not exceeding three days. Three journals may be borrowed at a time. No journals are available prior to 1930. Requests for periodicals should be addressed to the Library of the American Medical Association and should be accompanied by stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Thus most of these journals are accessible to the general practitioner.

- Accademia medica. Genoa.
Acta chirurgica Scandinavica. Stockholm.
Acta medica Scandinavica. Stockholm.
Acta ophthalmologica. Copenhagen.
Acta orthopaedica Scandinavica. Copenhagen.
Acta paediatrica. Stockholm.
Acta radiologica. Stockholm.
Acta tuberculosea Scandinavica. Copenhagen.
American Heart Journal. St. Louis.
American Journal of Cancer. New York.
American Journal of Clinical Pathology. Baltimore.
American Journal of Digestive Diseases. Huntington, Ind.
*American Journal of Diseases of Children. A. M. A., Chicago.
American Journal of Hygiene. Baltimore.
American Journal of the Medical Sciences. Philadelphia.
American Journal of Obstetrics and Gynecology. St. Louis.
American Journal of Ophthalmology. St. Louis.
American Journal of Orthopsychiatry. Menasha, Wls.
American Journal of Pathology. Boston.
American Journal of Physiology. Baltimore.
American Journal of Psychiatry. New York.
American Journal of Public Health. New York.
American Journal of Roentgenol. and Radium Therapy. Springfield, Ill.
American Journal of Surgery. New York.
American Journal of Syphilis, Gonorr. and Venereal Diseases. St. Louis.
American Journal of Tropical Medicine. Baltimore.
American Review of Tuberculosis. New York.
Anales de la clinica Quirurgical. Lima.
Annales de dermatologie et de syphiligraphie. Paris.
Annales paediatrici. Basel.
Annali di radiologia diagnostica. Bologna.
Annals of Internal Medicine. Lancaster, Pa.
Annals of Otolaryngology and Rhinology. St. Louis.
Annals of the Rheumatic Diseases. London.
Annals of Surgery. Philadelphia.
Archiv für Dermatologie und Syphilis. Berlin.
Archiv für experimentelle Pathologie und Pharmakologie. Berlin.
Archiv für Gewerbepathologie und Gewerbehygiene. Berlin.
Archiv für Kinderheilkunde. Stuttgart.
Archiv für klinische Chirurgie. Berlin.
Archiv für Ohren-, Nasen- und Kehlkopfheilkunde. Berlin.
Archiv für Ophthalmologie. Berlin.
Archiv für orthopädische und Unfall-Chirurgie. Berlin.
*Archives of Dermatology and Syphilology. A. M. A., Chicago.
Archives of Disease in Childhood. London.
*Archives of Internal Medicine. A. M. A., Chicago.
Archives des maladies de l'appareil digestif. Paris.
Archives des maladies du coeur. Paris.
Archives médico-chirurgicales de l'appareil respiratoire. Paris.
Archives de médecine des enfants. Paris.
*Archives of Neurology and Psychiatry. A. M. A., Chicago.
*Archives of Ophthalmology. A. M. A., Chicago.
*Archives of Otolaryngology. A. M. A., Chicago.
*Archives of Pathology. A. M. A., Chicago.
Archives of Physical Therapy. Chicago.
*Archives of Surgery. A. M. A., Chicago.
Archivio italiano di chirurgia. Bologna.
Archivio de ortopedia. Milan.
Archivos argentinos de pediatria. Buenos Aires.
Ateneo parmense. Parma.
Athena. Rome.
Australian Journal of Experimental Biology and Medical Science. Adelaide.
Beiträge zur klinischen Chirurgie. Berlin.
Beiträge zur Klinik der Tuberkulose. Berlin.
Bibliotek for læger. Copenhagen.
Boletín de la Asociación médica de Puerto Rico. Puerto Rico.
Boletín de la Sociedad cubana de pediatria. Havana.
Bollettino d'oculistica. Florence.
Brain. London.
Brasil-medico. Rio de Janeiro.
British Heart Journal. London.
British Journal of Children's Diseases. London.
British Journal of Dermatology and Syphilis. London.
British Journal of Experimental Pathology. London.
British Journal of Ophthalmology. London.
British Journal of Radiology. London.
British Journal of Surgery. Bristol.
British Journal of Tuberculosis. London.
British Journal of Urology. London.
British Medical Journal. London.
Bruxelles-médical. Brussels.
Bulletin of the Johns Hopkins Hospital. Baltimore.
Bulletin of the New York Academy of Medicine. New York.
California and Western Medicine. San Francisco.
Canadian Medical Association Journal. Montreal.
Canadian Public Health Journal. Toronto.
Cardiologia. Basel.
Chinese Medical Journal. Peiping.
Chirurg. Berlin.
Chirurgia degli organi di movimento. Bologna.
Clinica medica italiana. Milan.
Confinia neurologica. Basel.
Connecticut State Medical Journal. Hartford.
Delaware State Medical Journal. Wilmington.
Dermatologica. Basel.
Deutsches Archiv für klinische Medizin. Berlin.
Deutsche medizinische Wochenschrift. Leipzig.
Deutsche Zeitschrift für Chirurgie. Berlin.
Edinburgh Medical Journal.
Encéphale. Paris.
Endocrinology. Los Angeles.
Endokrinologie. Leipzig.
Fortschritte auf dem Gebiete der Röntgenstrahlen. Leipzig.
Gastroenterologia. Basel.
Gazette des hôpitaux. Paris.
Gazzetta degli ospedali e delle cliniche. Milan.
Geburtshilfe und Frauenheilkunde. Leipzig.
Geneeskundig tijdschrift voor Nederlandsch-Indië. Batavia.
Giornale di clinica medica. Parma.
Giornale veneto de scienze mediche. Venice.
Glasgow Medical Journal.
Gynécologie. Paris.
Gynécologie et obstétrique. Paris.
Illinois Medical Journal. Chicago.
Indian Medical Gazette. Calcutta.
Journal of Allergy. St. Louis.
Journal of the Arkansas Medical Society. Fort Smith.
Journal of Aviation Medicine. St. Paul.
Journal of Bacteriology. Baltimore.
Journal belge de neurologie et de psychiatrie. Brussels.
Journal belge d'urologie. Brussels.
Journal of Bone and Joint Surgery. Boston.
Journal de chirurgie. Paris.
Journal of Clinical Investigation. New York.
Journal of the Connecticut State Medical Society (continued as Connecticut State Medical Journal).
Journal of Endocrinology. London.
Journal of Experimental Medicine. New York.
Journal of the Florida Medical Association. Jacksonville.
Journal of Hygiene. London.
Journal of Immunology. Baltimore.
Journal of the Indiana State Medical Association. Indianapolis.
Journal of Industrial Hygiene and Toxicology. Baltimore.
Journal of Infectious Diseases. Chicago.
Journal of Investigative Dermatology. Baltimore.
Journal of the Iowa State Medical Society. Des Moines.
Journal of the Kansas Medical Society. Topeka.
Journal of Laboratory and Clinical Medicine. St. Louis.
Journal-Lancet. Minneapolis.
Journal of Laryngology and Otolaryngology. London.
Journal of the Maine Medical Association. Portland.
Journal of the Medical Association of the State of Alabama. Montgomery.
Journal of the Medical Association of Georgia. Atlanta.
Journal of the Medical Society of New Jersey. Trenton.
Journal of Mental Science. London.
Journal of the Michigan State Medical Society. Lansing.
Journal of the Missouri State Medical Association. St. Louis.
Journal of the Mount Sinai Hospital. New York.
Journal of Nervous and Mental Disease. New York.
Journal of Neurology and Psychiatry. London.
Journal of Neurophysiology. Springfield, Ill.
Journal of Nutrition. Philadelphia.
Journal of Obstetrics and Gynaecology of British Empire. Manchester.
Journal of the Oklahoma State Medical Association. Oklahoma City.

*Cannot be lent.

- Journal of Pathology and Bacteriology. Edinburgh.
 Journal of Pediatrics. St. Louis.
 Journal of Pharmacology and Experimental Therapeutics. Baltimore.
 Journal of the Philippine Medical Association. Manila.
 Journal of Physiology. Cambridge.
 Journal de radiologie et d'électrologie. Paris.
 Journal of the South Carolina Medical Association. Greenville.
 Journal of the Tennessee State Medical Association. Nashville.
 Journal of Thoracic Surgery. St. Louis.
 Journal of Urology. Baltimore.
 Kentucky Medical Journal. Bowling Green.
 Kinderärztliche Praxis. Leipzig.
 Klinicheskaya Meditsina. Moscow.
 Klinische Monatsblätter für Augenheilkunde. Stuttgart.
 Klinische Wochenschrift. Berlin.
 Lancel. London.
 Laryngoscope. St. Louis.
 Lattante. Parma.
 Lisboa médica. Lisbon.
 Lyon chirurgial. Paris.
 Maandschrift voor kindergeneeskunde. Leyden.
 Mededeeling van den dienst der volksgezondheid in Nederlandsch-Indië. Batavia.
 Medical Annals of the District of Columbia. Washington.
 Medical Bulletin of the Veterans' Administration. Washington, D. C.
 Medical Journal of Australia. Sydney.
 Medicine. Baltimore.
 Medizinische Klinik. Berlin.
 Medizinische Welt. Berlin.
 Mental Hygiene. Albany, N. Y.
 Military Surgeon. Washington, D. C.
 Minnesota Medicine. St. Paul.
 Monatsschrift für Kinderheilkunde. Berlin.
 Monatsschrift für Psychiatrie und Neurologie. Basel.
 Münchener medizinische Wochenschrift. Munich.
 Nebraska State Medical Journal. Lincoln.
 Nederlandsch tijdschrift voor geneeskunde. Amsterdam.
 New England Journal of Medicine. Boston.
 New Orleans Medical and Surgical Journal.
 New York State Journal of Medicine. New York.
 New Zealand Medical Journal. Wellington.
 Nordisk medicin. Gothenburg.
 North Carolina Medical Journal. Winston-Salem.
 Northwest Medicine. Seattle.
 Ohio State Medical Journal. Columbus.
 Ophthalmologica. Basel.
 Oto-rino-laringologia italiana. Bologna.
 Pathologica. Genoa.
 Pediatria. Naples.
 Pennsylvania Medical Journal. Harrisburg.
 Physiological Reviews. Baltimore.
 Policlínico (sezione pratica). Rome.
 Practitioner. London.
 Prensa médica argentina. Buenos Aires.
 Presse médicale. Paris.
 Problemy tuberkuleza. Moscow.
 Proceedings of the Royal Society of Medicine. London.
 Progrès médical. Paris.
 Psychiatric Quarterly. Utica, N. Y.
 Psychoanalytic Quarterly. Albany, N. Y.
 Public Health Reports. Washington, D. C.
 Puerto Rico Journal of Public Health and Tropical Medicine. San Juan.
 Quarterly Bulletin of Sea View Hospital. New York.
 Quarterly Journal of Medicine. Oxford.
 Radiology. Syracuse, N. Y.
 Review of Gastroenterology. New York.
 Revista de la Asociación médica argentina. Buenos Aires.
 Revista española de medicina y cirugía de guerra. Valladolid.
 Revista médica latino-americana. Buenos Aires.
 Revista médica de Rosario. Rosario de Santa Fe.
 Revue belge de pédiatrie. Brussels.
 Revue belge des sciences médicales. Louvain.
 Revue de chirurgie. Paris.
 Revue française de pédiatrie. Paris.
 Revue de laryngologie. Bordeaux.
 Revue médico-chirurgicale des maladies du foie. Paris.
 Revue neurologique. Paris.
 Rhode Island Medical Journal. Providence.
 Riforma medica. Naples.
 Rivista di neurologia. Naples.
 Rivista di patologia e clinica della tubercolosi. Bologna.
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This is an index to all the reading matter in THE JOURNAL. In the Current Medical Literature Department only the articles which have been abstracted are indexed.

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Conv.—Convention
Dist.—District
Hosp.—Hospital
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M.—Medical
Med.—Medical
Not.—National
Phor.—Pharmaceutical
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